
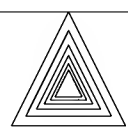
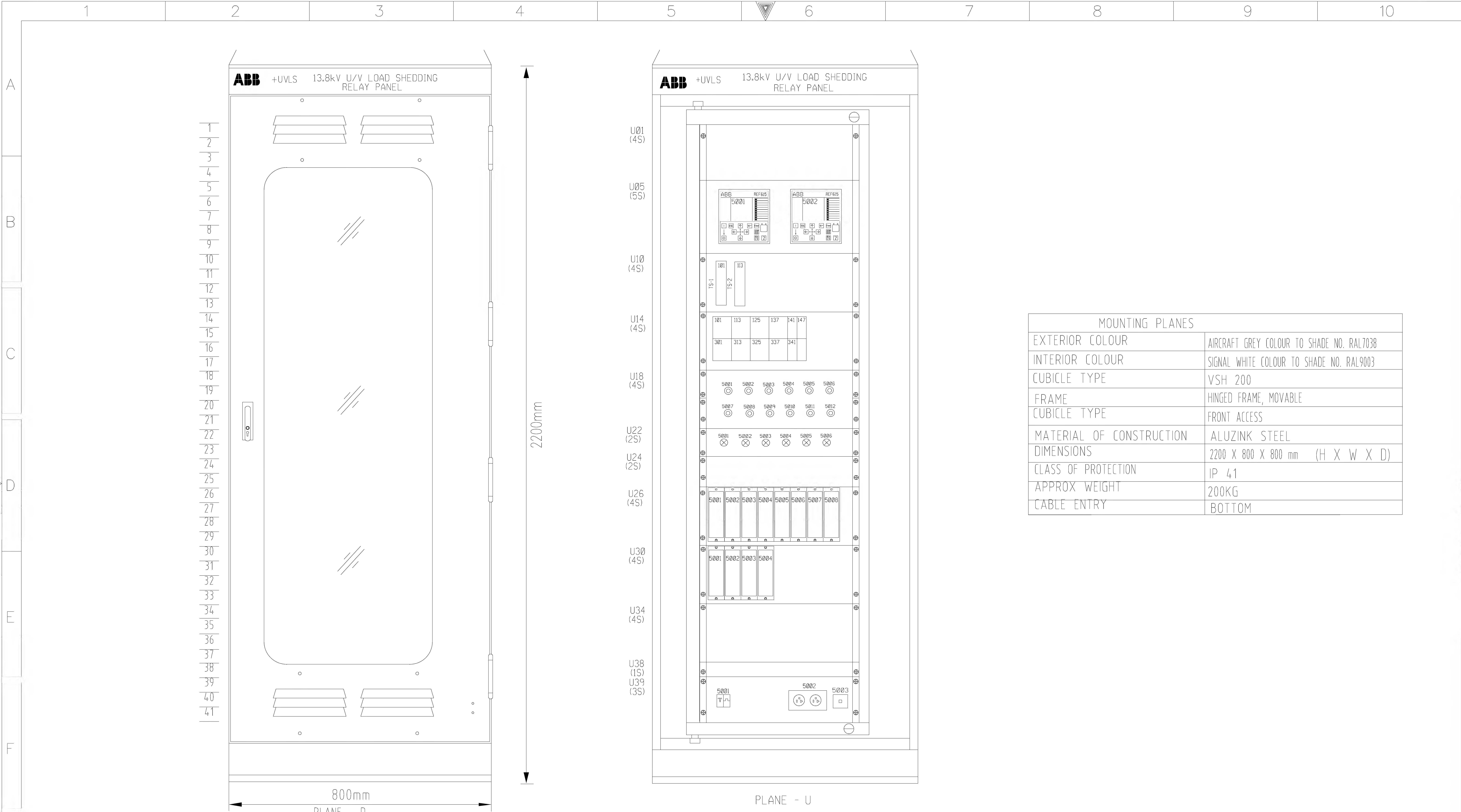



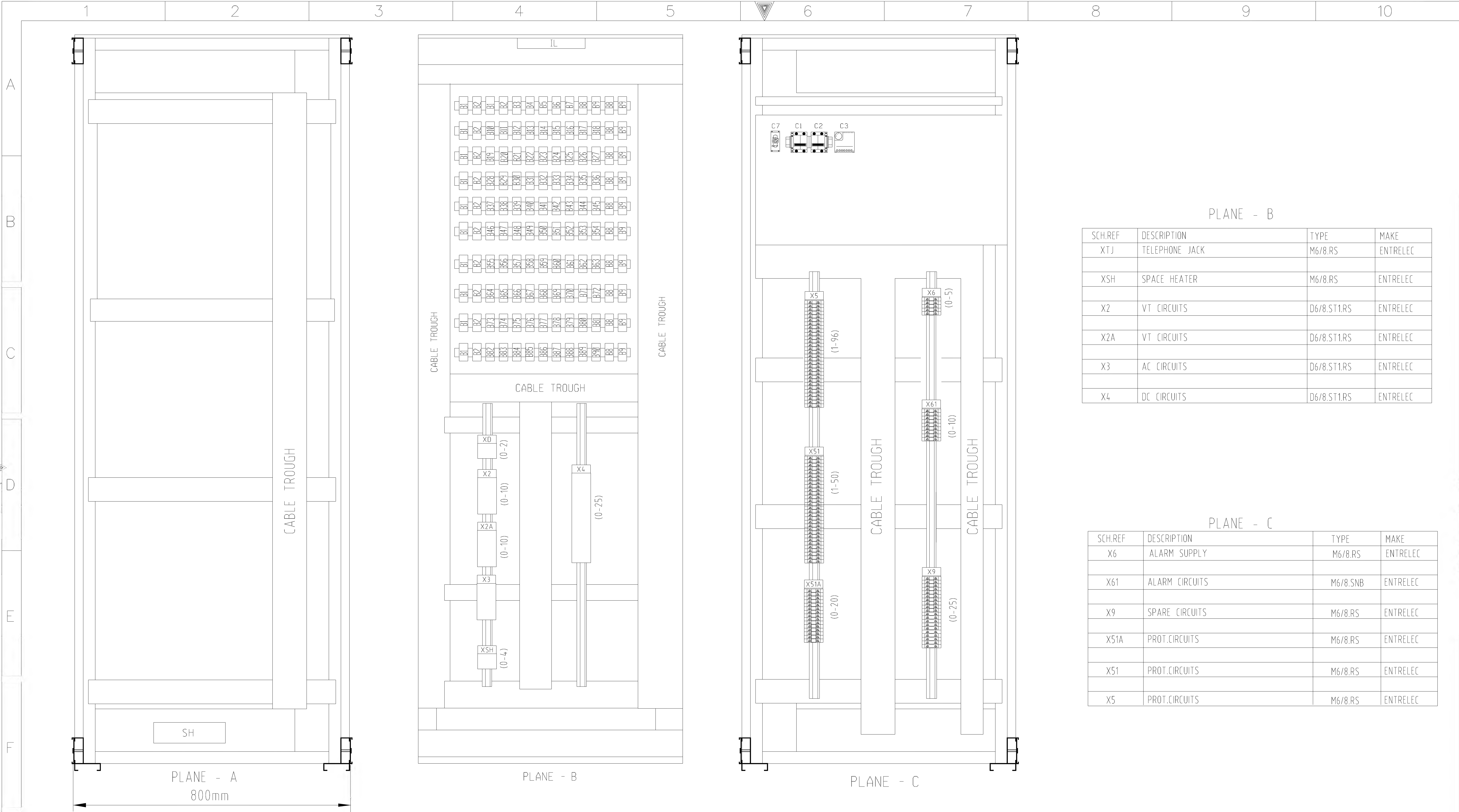
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C	<div>CONTRACTOR : ABB Contracting Company</div> <div>CLIENT : National Grid sa</div>																																																			
D	<div>PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709</div> <div>SUBSTATION : S/S 8709</div>																																																			
E	<div>CONTRACT NO. : 11131113/00</div> <div>TITLE : ASSEMBLY DRAWINGS +UVLS</div> <div>(UNDER VOLTAGE LOAD SHEDDING PANEL)</div>																																																			
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MOUNTING PLANES	
EXTERIOR COLOUR	AIRCRAFT GREY COLOUR TO SHADE NO. RAL7038
INTERIOR COLOUR	SIGNAL WHITE COLOUR TO SHADE NO. RAL9003
CUBICLE TYPE	VSH 200
FRAME	HINGED FRAME, MOVABLE
CUBICLE TYPE	FRONT ACCESS
MATERIAL OF CONSTRUCTION	ALUZINK STEEL
DIMENSIONS	2200 X 800 X 800 mm (H X W X D)
CLASS OF PROTECTION	IP 41
APPROX WEIGHT	200KG
CABLE ENTRY	BOTTOM

G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		ASSEMBLY DRAWING		الشركة الوطنية لنقل الكهرباء		 نقل الكهرباء		National Grid sa	
	02	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kV UV LOAD SHEEDING PANEL +UVLS		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
	01	13 25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY					SHT	CONT.	
	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA					G01	G02	
	REV. NO.	DATE	DESCRIPTION						-	C421	CD-322967			02



PLANE - B

SCH.REF	DESCRIPTION	TYPE	MAKE
XTJ	TELEPHONE JACK	M6/8.RS	ENTRELEC
XSH	SPACE HEATER	M6/8.RS	ENTRELEC
X2	VT CIRCUITS	D6/8.ST1.RS	ENTRELEC
X2A	VT CIRCUITS	D6/8.ST1.RS	ENTRELEC
X3	AC CIRCUITS	D6/8.ST1.RS	ENTRELEC
X4	DC CIRCUITS	D6/8.ST1.RS	ENTRELEC

PLANE - C

SCH.REF	DESCRIPTION	TYPE	MAKE
X6	ALARM SUPPLY	M6/8.RS	ENTRELEC
X61	ALARM CIRCUITS	M6/8.SNB	ENTRELEC
X9	SPARE CIRCUITS	M6/8.RS	ENTRELEC
X51A	PROT.CIRCUITS	M6/8.RS	ENTRELEC
X51	PROT.CIRCUITS	M6/8.RS	ENTRELEC
X5	PROT.CIRCUITS	M6/8.RS	ENTRELEC

02

13 48

AS MANUFACTURED

01

13 25

AS PER SEC COMMENTS

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13 04

FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

CONTRACT NO.

11131113/00

JOB ORDER NO.

S-13656

DRAWN BY

RIZ

CHECKED BY

KVR

DATE STARTED

24.01.2013

DATE COMPLETED

OPRG. DEPT.

CTPD

ENG. DEPT.

AUT-PSAC

ASSEMBLY DRAWING

13.8kV UV LOAD SHEEDING PANEL +UVLS

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

National Grid sa

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PLANT NO.

DRAWING NUMBER

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-

C421

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SHT

CONT.

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A			POWER SYSTEMS NETWORK MANAGEMENT PROTECTION AND SUBSTATION AUTOMATION SYSTEMS WBS NO: S-13656					ABB AUTOMATION COMPANY LTD., 414, AL-KHARJ ROAD SECOND INDUSTRIAL CITY RIYADH-11383 K.S.A																																																				
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A	SR. NO.	LOCATION REF.	SCH. REF.	D E S C R I P T I O N			SHEET. NO.	QTY.	TYPE	MAKE	ORDERING INFORMATION
	16	U39.5001	Q1	MCB 2 POLE 6A, FOR DC SUPPLY WITH 2NC AUX. CONTACT UVLS± SUPPLY			SH.216	1	S282UCK6	ABB	S282UC-K6+S2-H11
	17	U39.5002	C01	CONVENIENCE OUTLET 10A, 127V AC			SH.211	1	LEGRAND	COMBINATION	58901
			C02	CONVENIENCE OUTLET 10A, 220V AC							
	18	U39.5003	TJ	TELEPHONE JACK 1GANG 4WIRE			SH.211	1	EDF410		EDF410
B	19			STAGE-1,2&3 TRIP ISOLATION LINKS FOR FOLLOWING 13.8KV FEEDERS			SH.228-235	90	RS 20	GEC	-
		B1,B2,B3	1LKH23,2LKH23,3LKH23	CB S2305			SH.228				
		B4,B5,B6	1LKH21,2LKH21,3LKH21	CB S2105			SH.228				
		B7,B8,B9	1LKH19,2LKH19,3LKH19	CB S1905			SH.228				
		B10,B11,B12	1LKH17,2LKH17,3LKH17	CB S1705			SH.228				
		B13,B14,B15	1LKH15,2LKH15,3LKH15	CB S1505			SH.229				
		B16,B17,B18	1LKH11,2LKH11,3LKH11	CB S1105			SH.229				
		B19,B20,B21	1LKH9,2LKH9,3LKH9	CB S905			SH.229				
		B22,B23,B24	1LKH7,2LKH7,3LKH7	CB S705			SH.229				
		B25,B26,B27	1LKH5,2LKH5,3LKH5	CB S505			SH.230				
		B28,B29,B30	1LKH3,2LKH3,3LKH3	CB S305			SH.230				
		B31,B32,B33	1LKH2,2LKH2,3LKH2	CB S205			SH.230				
		B34,B35,B36	1LKH4,2LKH4,3LKH4	CB S405			SH.230				
		B37,B38,B39	1LKH6,2LKH6,3LKH6	CB S605			SH.231				
		B40,B41,B42	1LKH8,2LKH8,3LKH8	CB S805			SH.231				
		B43,B44,B45	1LKH10,2LKH10,3LKH10	CB S1005			SH.231				
		B46,B47,B48	1LKH14,2LKH14,3LKH14	CB S1405			SH.231				
		B49,B50,B51	1LKH16,2LKH16,3LKH16	CB S1605			SH.232				
F		B52,B53,B54	1LKH18,2LKH18,3LKH18	CB S1805			SH.232				

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

0213 48AS MANUFACTURED

0113 25AS PER SEC COMMENTS

0013 04FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY RIZ CHECKED BY KVR

DATE STARTED24.01.2013DATE COMPLETED

OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC


LIST OF APPARATUS

13.8kv UV LOAD SHEEDING PANEL +UVLS

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

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L04L05

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NG/D2-D (2012/01)

DMS

VECTOR

NGD200

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SR. NO.	GA REF.	ITEM DESIGNATION	D E S C R I P T I O N	SHEET.NO.	QTY.	TYPE	MAKE	ORDERING INFORMATION
20		C1,C2	MINIATURE CIRCUIT BREAKER, 2 POLE, 10A FOR CONVENIENCE OUTLET WITH AUXILIARY SWITCH, 1NO + 1NC CONTACTS	SH.211	2	S202-PK10 S2-H11	ABB	GH S282 0001 R4027 GH S270 1916 R0001
		C3	THERMOSTAT FOR SPACE HEATER, 5-60°C	SH.211	1	SK 3110	RITTAL	
		C7	ON-OFF SWITCH FOR SPACE HEATER	SH.211	1		HI-TECH	789010956
		DS	DOOR SWITCH FOR CONTROL OF CUBICLE INTERNAL ILLUMINATION LAMP	SH.211	1	LS30P13B02	ABB	1SBV010213R1202
		IL	INTERNAL ILLUMINATION CUBICLE LAMP SUITABLE FOR 127V AC, 60Hz SUPPLY	SH.211	1	T-4 (SP-20W)		
		SH	SPACE HEATER, 150w, 120v, 60Hz	SH.211	1	RICA	GRUPPO	1FZEK006C002
21		XSH	SPRING LOADED TERMINAL BLOCK FOR SPACE HEATER	SH.302	2	M6/8.RS	ENTRELEC	1SNA 115 685 R1200
		X3	SPRING LOADED TERMINAL BLOCKS DISCONNECTIBLE FOR AC CIRCUITS	SH.302	10	D6/8.ST1.RS	ENTRELEC	1SNA 115 831 R0400
		X4	SPRING LOADED TERMINAL BLOCKS DISCONNECTIBLE FOR DC CIRCUITS	SH.302	25	D6/8.ST1.RS	ENTRELEC	1SNA 115 831 R0400
		X2,X2A	SPRING LOADED TERMINAL BLOCKS DISCONNECTIBLE FOR VT CIRCUITS	SH.302	60	D6/8.ST1.RS	ENTRELEC	1SNA 115 831 R0400
		X5 X51	SPRING LOADED TERMINAL BLOCK SOLID TYPE FOR PROT. CIRCUITS	SH.302 SH.302	92 55	M6/8.RS	ENTRELEC	1SNA 115 685 R1200
		X61	KINFE TYPE TERMINAL BLOCK FOR ALARM	SH.302	10	M6/8 SNB	ENTRELEC	1SNA 115 688 R2500
		X6	SPRING LOADED TERMINAL BLOCK KNIFE TYPE FOR LOCAL ALARM	SH.302	5	M6/8.RS	ENTRELEC	1SNA 115 685 R1200
		X51A	SPRING LOADED TERMINAL BLOCK SOLID TYPE FOR PROT. CIRCUITS	SH.302	20	M6/8 RS	ENTRELEC	1SNA 115 688 R2500
		XTJ	SPRING LOADED TERMINAL BLOCK FOR TELEPHONE JACK	SH.302	4	M6/8.RS	ENTRELEC	1SNA 115 685 R1200
		X9	SPRING LOADED TERMINAL BLOCK FOR SPARE	SH.302	25	M6/8 RS	ENTRELEC	1SNA 115 688 R2500

G

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

02

13 48

AS MANUFACTURED

01

13 25

AS PER SEC COMMENTS

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13 04

FOR APPROVAL

REV.
NO.

DATE

DESCRIPTION

DRAWN BY RIZ CHECKED BY KVR

DATE STARTED 24.01.2013 DATE COMPLETED _____

OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

LIST OF APPARATUS

13.8kv UV LOAD SHEEDING PANEL +UVLS

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

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DMS VECTOR NGD200

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	1	2	3	4	5	6	7	8	9	10					
A		LABEL REF.	LABEL ENGRAVING	MATERIALS	ENGRAVING	LABEL SIZE	LETTER SIZE								
		U05.5001	U05.5001 27UV1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm								
		U05.5002	U05.5002 27UV2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm								
		U10.101	U10.101 TS-1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
B		U10.113	U10.113 TS-2	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
		U14.101	U14.101 K01	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
		U14.113	U14.113 K02	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
		U14.125	U14.125 K03	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
C		U14.141	U14.141 74UV	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
		U14.301	U14.301 K03	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
		U14.313	U14.313 K04	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
		U14.325	U14.325 K06	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
D		U14.137	U14.137 194A1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
		U14.337	U14.337 296AX1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
		U14.147	U14.341 194AX	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
		U14.341	U14.5003 296AX	ALUMINUM PAPER FOIL	BLACK LETTERS	50X15mm	3mm								
E		U18.5001	U18.5001 S01	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm								
		U18.5002	U18.5002 S02	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm								
		U18.5003	U18.5003 S03	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm								
		U18.5004	U18.5004 S04	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm								
F		U18.5005	U18.5005 S05	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm								
		U18.5006	U18.5006 S06	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm								
		U18.5007	U18.5007 S07	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X10mm	4mm								
		U18.5008	U18.5008 S08	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X10mm	4mm								
G		U18.5009	U18.5009 S09	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X10mm	4mm								
		U18.5010	U18.5010 S10	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X10mm	4mm								
		U18.5011	U18.5011 S11	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X10mm	4mm								
AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS		<div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>							
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01	13 25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY									
00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA									
REV. NO.		DATE		DESCRIPTION		INDEX		PLANT NO.		DRAWING NUMBER		SHEET NO.		REV. NO.	
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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS			
02	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kv UV LOAD SHEEDING PANEL +UVLS				
01	13 25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY				
00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA				
REV. NO.	DATE	DESCRIPTION								

الشركة الوطنية لنقل الكهرباء				نقل الكهرباء		
				National Grid sa		
INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
-	C421	CD-322967		SHT CONT.		02
		L08L09				

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LABEL REF.	LABEL ENGRAVING	MATERIALS	ENGRAVING	LABEL SIZE	LETTER SIZE
C1	C1 127V AC SUPPLY MCB	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C2	C2 220V AC SUPPLY MCB	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C3	C3 THERMOSTAT	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C7	C7 ON/OFF SWITCH	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
DS	DS DOOR SWITCH	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
IL	IL ILLUMINATION LAMP	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
SH	SH SPACE HEATER	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm

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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS				<div><div>الشركة الوطنية لنقل الكهرباء</div><div><div><div><div></div></div><div>نقل الكهرباء</div><div>National Grid SA</div></div></div></div>									
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REV. NO.	DATE	DESCRIPTION												SHT	CONT.					

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A			POWER SYSTEMS NETWORK MANAGEMENT PROTECTION AND SUBSTATION AUTOMATION SYSTEMS WBS NO: S-13656					ABB AUTOMATION COMPANY LTD., 414, AL-KHARJ ROAD SECOND INDUSTRIAL CITY RIYADH-11383 K.S.A																																																																										
B																																																																																		
C	CONTRACTOR : ABB Contracting Company																																																																																	
D	CLIENT : National Grid sa																																																																																	
E	PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709 IN AL-KHARJ CITY																																																																																	
F	SUBSTATION : S/S 8709																																																																																	
	CONTRACT NO. : 11131113/00																																																																																	
	TITLE : SCHEMATIC DRAWINGS +UVLS (UNDER VOLTAGE LOAD SHEDDING PANEL)																																																																																	
G	<table><tr><td colspan="3">AS-BUILT BY _____ DATE _____</td><td colspan="2">CONTRACT NO. 11131113/00</td><td colspan="2">JOB ORDER NO. S-13656</td><td colspan="3">CONTENTS SHEET</td><td colspan="2"><div>الشركة الوطنية لنقل الكهرباء</div><div> نقل الكهرباء National Grid sa</div></td></tr><tr><td>02</td><td>13 48</td><td>AS MANUFACTURED</td><td colspan="2">DRAWN BY RIZ</td><td colspan="2">CHECKED BY KVR</td><td colspan="3">13.8kV UV LOAD SHEEDING PANEL +UVLS</td><td>INDEX</td><td>PLANT NO.</td><td>DRAWING NUMBER</td><td>SHEET NO.</td><td>REV. NO.</td></tr><tr><td>01</td><td>13 25</td><td>AS PER SEC COMMENTS</td><td colspan="2">DATE STARTED 24.01.2013</td><td colspan="2">DATE COMPLETED _____</td><td colspan="3">S/S 8709 - 132/13.8KV IN AL-KHARJ CITY</td><td>-</td><td>C421</td><td>CD-322968</td><td>SHT 000</td><td>CONT. 001</td></tr><tr><td>00</td><td>13 04</td><td>FOR APPROVAL</td><td colspan="2">OPRG. DEPT. CTPD</td><td colspan="2">ENG. DEPT. AUT-PSAC</td><td colspan="3">RIYADH SAUDI ARABIA</td><td></td><td></td><td></td><td></td><td>02</td></tr><tr><td>REV. NO.</td><td>DATE</td><td>DESCRIPTION</td><td colspan="2"></td><td colspan="2"></td><td colspan="3"></td><td></td><td></td><td></td><td></td><td></td></tr></table>										AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		CONTENTS SHEET			<div>الشركة الوطنية لنقل الكهرباء</div> <div> نقل الكهرباء National Grid sa</div>		02	13 48	AS MANUFACTURED	DRAWN BY RIZ		CHECKED BY KVR		13.8kV UV LOAD SHEEDING PANEL +UVLS			INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.	01	13 25	AS PER SEC COMMENTS	DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY			-	C421	CD-322968	SHT 000	CONT. 001	00	13 04	FOR APPROVAL	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA							02	REV. NO.	DATE	DESCRIPTION												
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ST-1,2&3 -OUTPUT CONTACTS(H15,H13,H9,H7)			229	01
ST-1,2&3 -OUTPUT CONTACTS(H5,H3,H2,H4)			230	01
ST-1,2&3 -OUTPUT CONTACTS(H6,H8,H10,H14)			231	01
ST-1,2&3 -OUTPUT CONTACTS(H26,H28,H30,H32)			232	01
ST-1,2&3 -OUTPUT CONTACTS(H34,H36,H38,H40)			234	01
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SHEET NO.		REV. NO.
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NG/D2-D (2012/01)

DMS

VECTOR

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SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FRAME CONNECTION		MAIN CONTACT OF A CIRCUIT BREAKER		RELAY WITH TWO MAKE CONTACTS, ONE OF THEM DELAYED WHEN OPERATING
	EARTH CONNECTION		PASSING MAKE CONTACT CLOSING MOMENTARILY DURING OPERATION AND RELEASE		RELAY WITH TWO ACTUATORS AND A TWO STABLE POSITIONS
	RESISTOR		BREAK CONTACT DELAYED WHEN OPERATING		SIGNALLING LAMP
	VARIABLE RESISTOR		MAKE CONTACT DELAYED WHEN RELEASING		MECHANICAL INDICATOR WITH AUTOMATIC RESET
	RESISTOR WITH PRESET ADJUSTMENT		TWO MECHANICAL LINKS CROSSING WITHOUT CONNECTION		MECHANICAL INDICATOR WITH NON-AUTOMATIC RESET
	CAPACITOR		JUNCTION OF MECHANICAL LINKS		ELECTRICALLY CONTROLLED MECHANICAL INDICATOR WITH AUTOMATIC RESET
	SEMICONDUCTOR DIODE USED AS A CAPACITIVE DEVICE		AUTOMATIC RESET		ELECTRICALLY CONTROLLED MECHANICAL INDICATOR WITH NON-AUTOMATIC RESET
	OPEN CONTACT, MAKE CONTACT		NON-AUTOMATIC RESET		RELAY WITH MAKE CONTACT
	CLOSED CONTACT, BREAK CONTACT		SWITCHING DEVICE WITH MANUAL OPERATION AND WITH AUTOMATIC RESET		RELAY WITH CHANGE-OVER CONTACT
	CHANGE-OVER CONTACT, BREAK BEFORE MAKE		SWITCHING DEVICE WITH MANUAL OPERATION AND WITH NON-AUTOMATIC RESET		ELECTRO-MECHANICAL POSITION INDICATOR WITH ONE DE-ENERGIZED AND ONE OPERATED POSITION
	MAKE CONTACT WHICH IS EARLY WHEN OPERATING AND LATE WHEN RELEASING		CHANGE-OVER SWITCHING DEVICE WITH MANUAL CONTROL AUTOMATIC RESET FROM POSITION 1-2 TO THE NEUTRAL POSITION		ELECTRO-MECHANICAL POSITION INDICATOR WITH ONE DE-ENERGIZED AND TWO OPERATED POSITIONS
	BREAK CONTACT WHICH IS LATE WHEN OPERATING AND EARLY WHEN RELEASING		RELAY WITH MAKE CONTACT, DELAYED WHEN OPERATING		BELL, BUZZER
	SWITCHING DEVICE WITH MANUAL CONTROL		RELAY WITH MAKE CONTACT, DELAYED WHEN RELEASING		SIREN , HORN
	MAKE CONTACT DELAYED WHEN OPERATING		RELAY WITH MAKE CONTACT, DELAYED WHEN OPERATING AND RELEASING		
	BREAK CONTACT DELAYED WHEN RELEASING				
	MAIN CONTACT OF A SWITCH DISCONNECTOR				
	MAIN CONTACT OF A DISCONNECTOR				

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ABB

PROTECTION & SUBSTATION
AUTOMATION

MANUFACTURER	SCHEMATICS DWG.NO	PANEL DESCRIPTION	PANEL REFERENCE
ABB PROTECTION & SUBSTATION AUTOMATION		SS 8709 13.8KV RELAY PANELS	
	CD-322952	13.8KV Capacitor Bank-1 Protection Panel	+CBP-1
	CD-322954	13.8KV Capacitor Bank-2 Protection Panel	+CBP-2
	CD-322956	13.8KV Capacitor Bank-2 Protection Panel	+CBP-3
	CD-322958	13.8 KV ACCS PANEL	+ACCS
	CD-322962	13.8KV ACSE PANEL	+ACSE
	CD-322968	13.8KV Under Voltage Load Shedding Panel	+UVLS
	CD-322964	13.8KV Under Frequency Load Shedding Panel-1	+UFLS01
	CD-322966	13.8KV Under Frequency Load Shedding Panel-2	+UFLS02

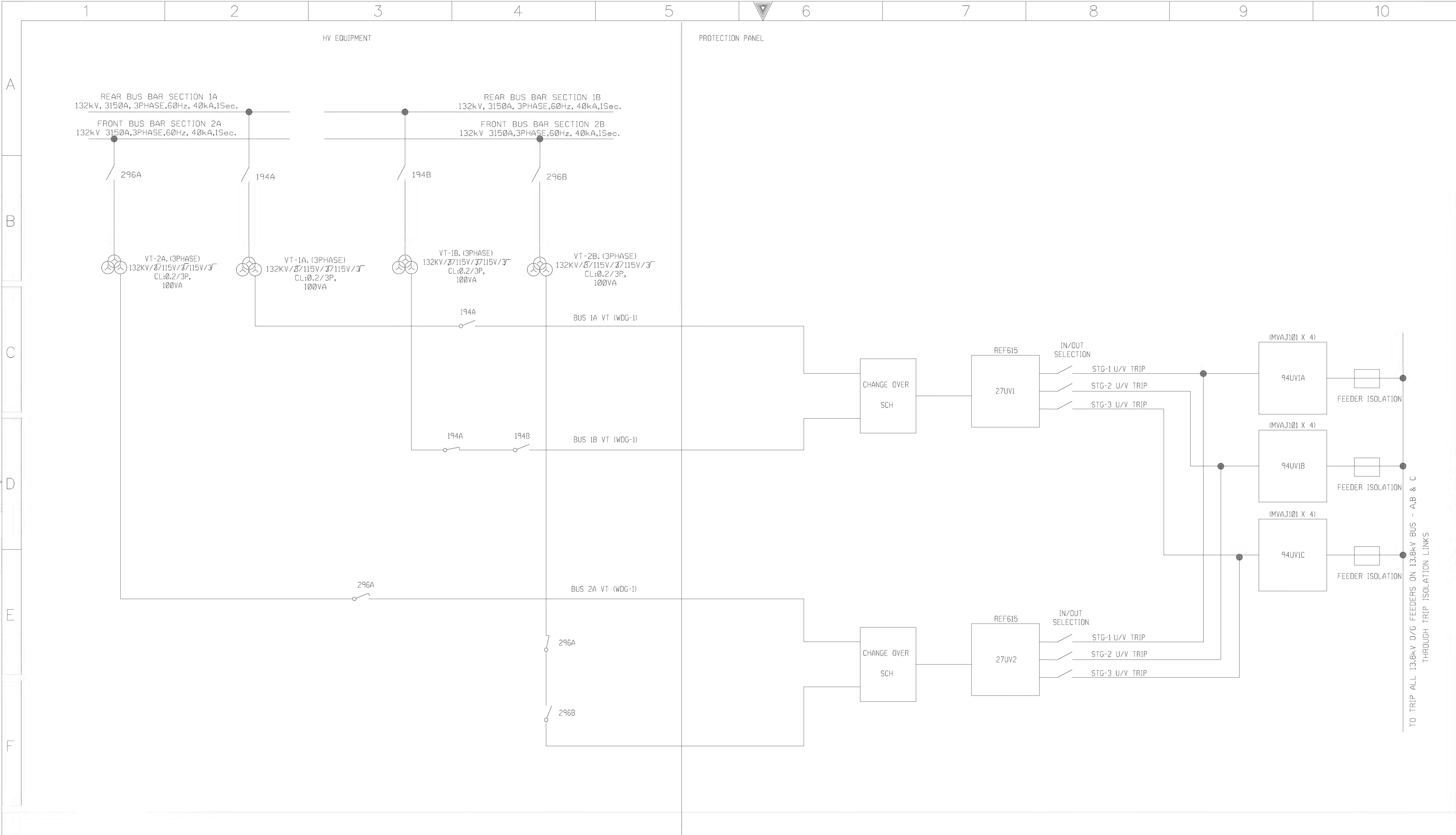
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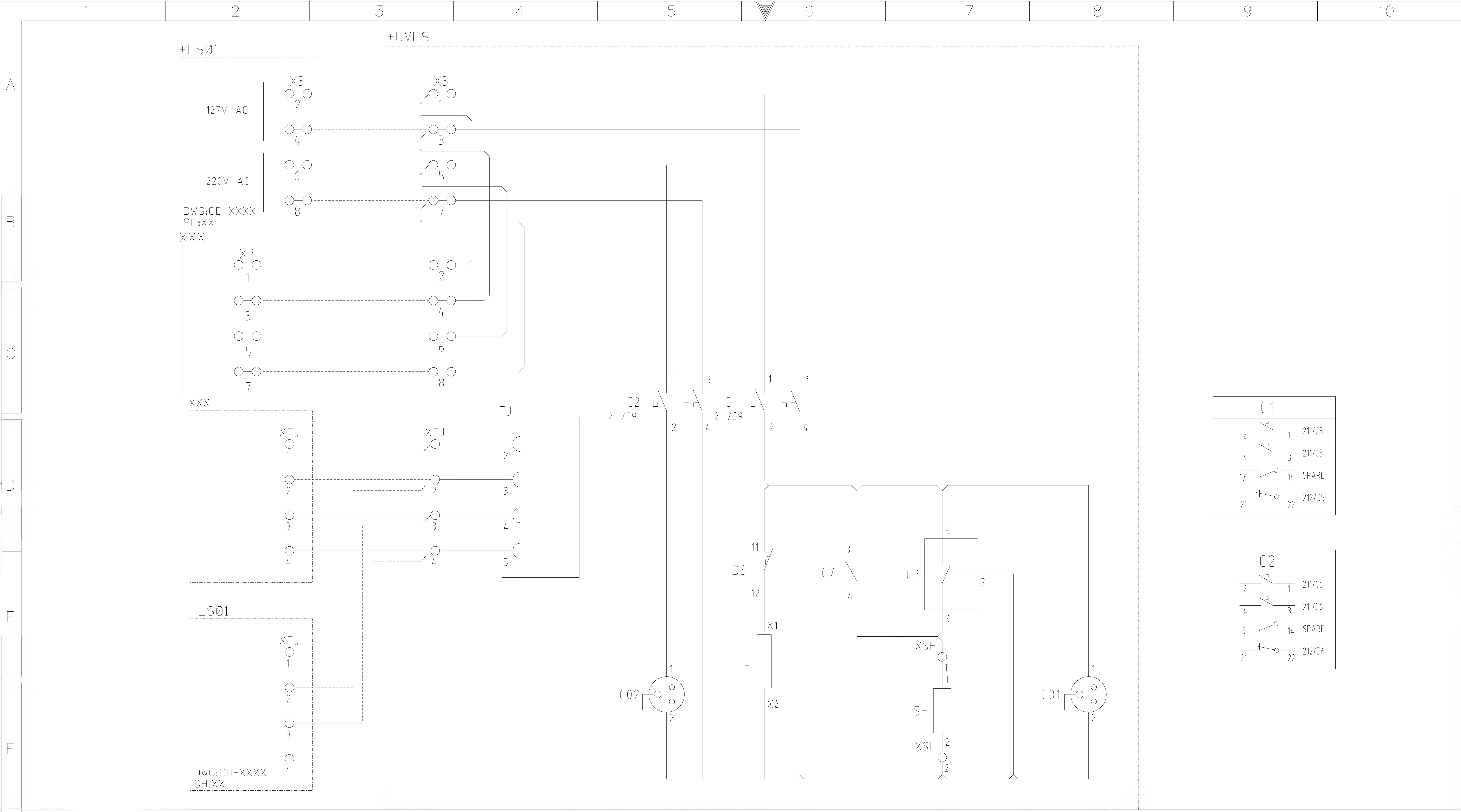
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DMS VECTOR

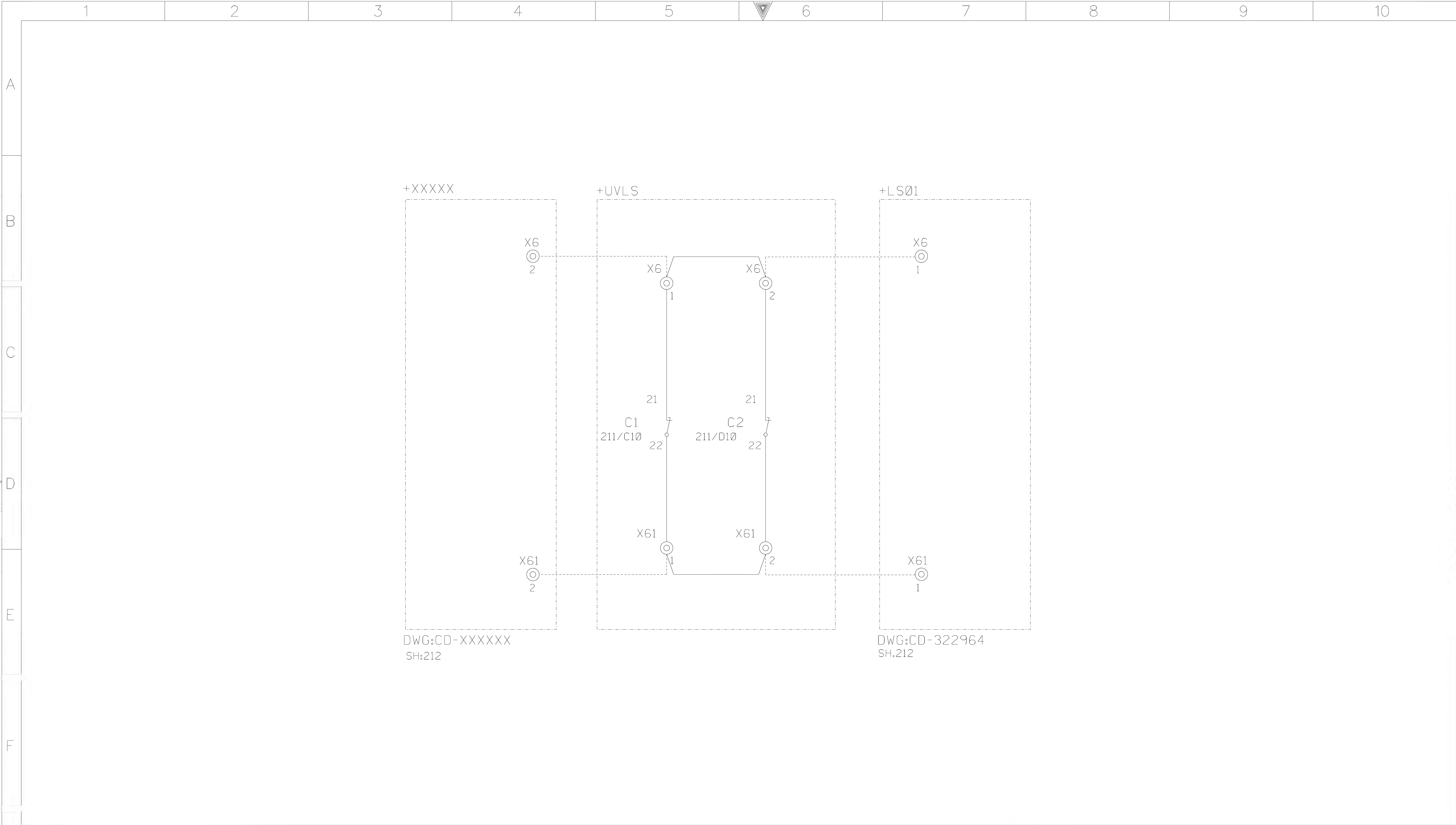
NGD200



G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LOGIC DIAGRAMS				الشركة الوطنية لنقل الكهرباء National Grid sa			
	02	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kV UV LOAD SHEEDING PANEL +UVLS							
	01	13 25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY							
	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA							
	REV. NO.	DATE	DESCRIPTION						INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
								-	C421	CD-322968		SHT 210	CONT. 211	02

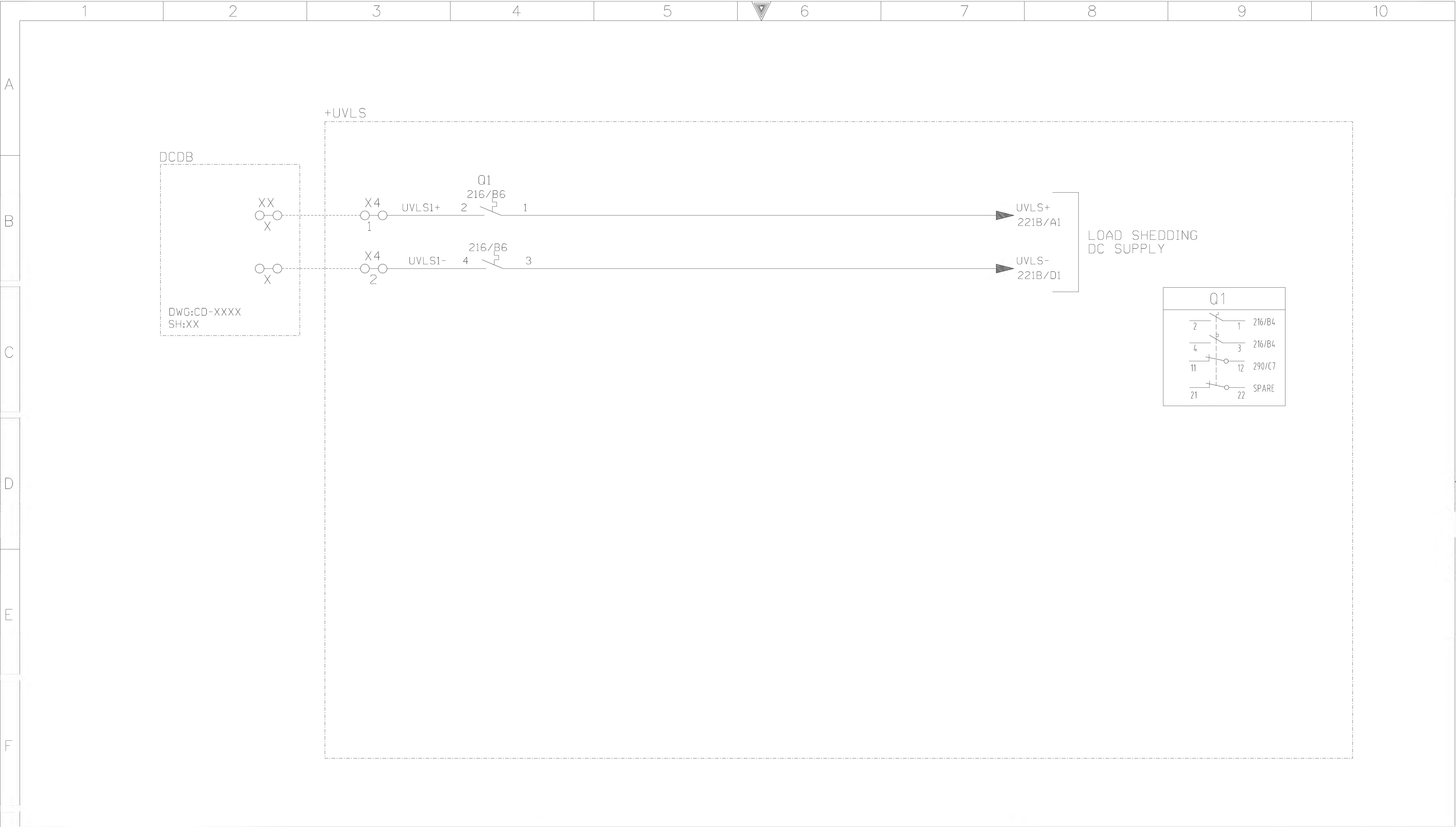


G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		AC SUPPLY FOR ILLUMINATION & POWER SOCKET		الشركة الوطنية لنقل الكهرباء National Grid sa					
	02	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kv UV LOAD SHEEDING PANEL +UVLS							
	01	13 25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY							
	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA							
	REV. NO.	DATE	DESCRIPTION						INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
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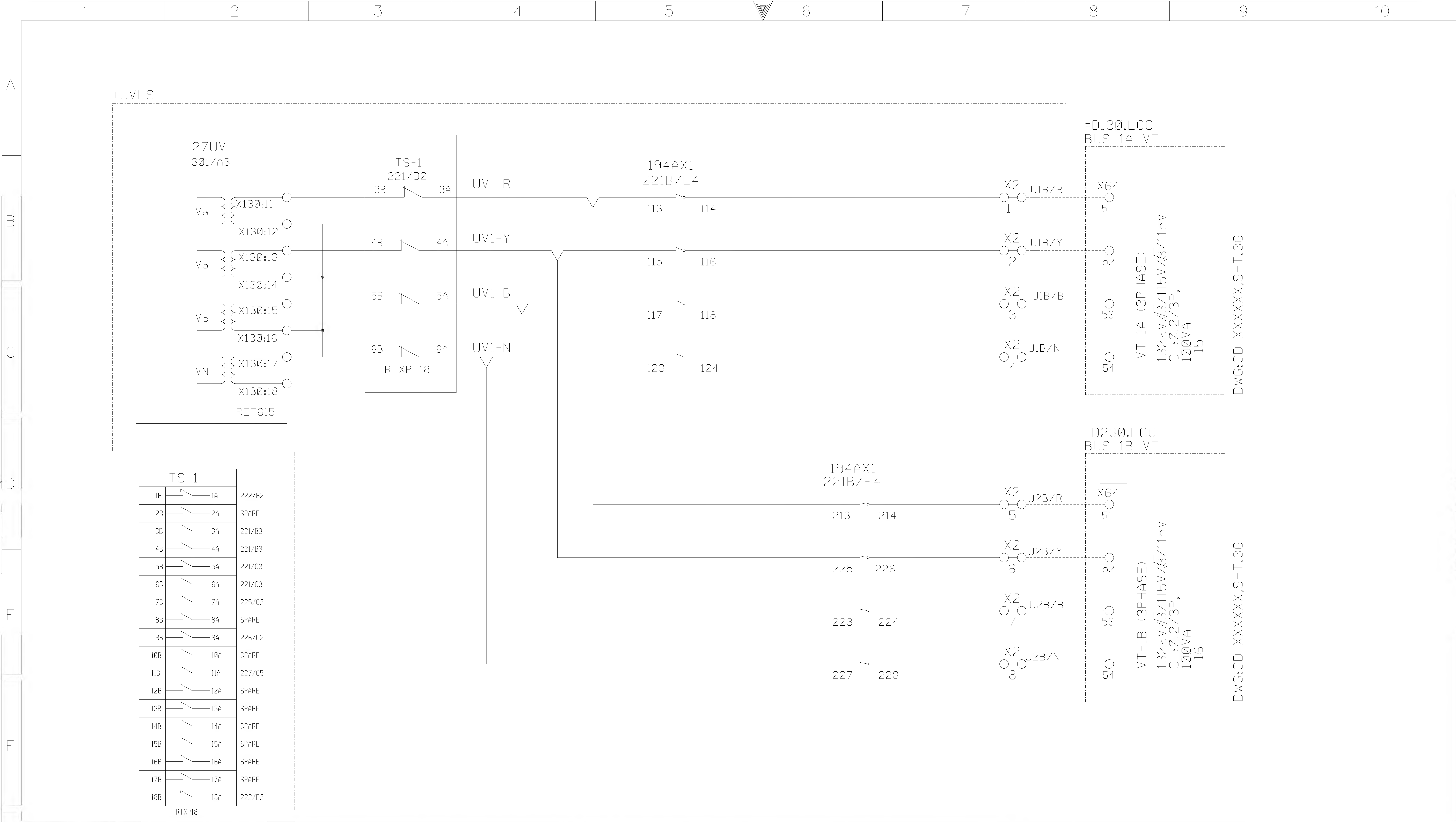



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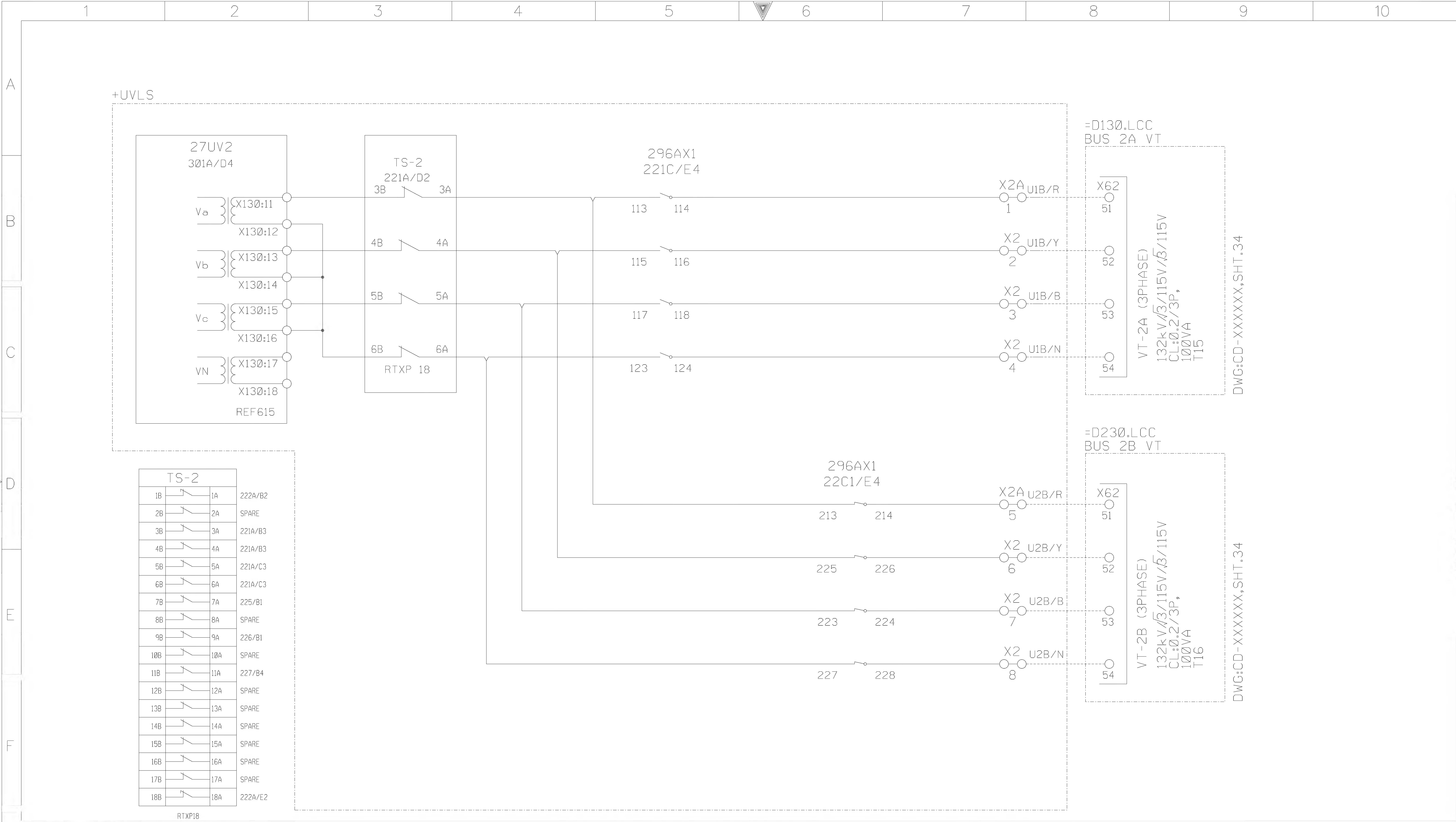
AS-BUILT BY _____			DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		AC SUPPLY AUXILARY CONTACTS			<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>						
02	13 48	AS MANUFACTURED			DRAWN BY RIZ		CHECKED BY KVR		13.8kv UV LOAD SHEEDING PANEL +UVLS									
01	13 25	AS PER SEC COMMENTS			DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY									
00	13 04	FOR APPROVAL			OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA			INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
REV. NO.		DATE		DESCRIPTION								-	C421	CD-322968		SHT	CONT.	02
																212	216	



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		DC DISTRIBUTION SHEET				<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid SA</div>						
G	02	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kV UV LOAD SHEEDING PANEL +UVLS										
	01	13 25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY										
	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA				INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	REV. NO.	DATE	DESCRIPTION								-	C421	CD-322968		SHT 216	CONT. 221	02



G	AS-BUILT BY _____		DATE _____	CONTRACT NO. 11131113/00	JOB ORDER NO. S-13656	VT CONNECTION-UNDER VOLTAGE RELAY		الشركة الوطنية لنقل الكهرباء		 نقل الكهرباء			
	02	13 48	AS MANUFACTURED	DRAWN BY _____ RIZ _____ CHECKED BY _____ KVR		13.8kv UV LOAD SHEEDING PANEL +UVLS		National Grid sa					
	01	13 25	AS PER SEC COMMENTS	DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		
	00	13 04	FOR APPROVAL	OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322968	SHT 221		
	REV. NO.	DATE	DESCRIPTION								CONT. 221A		
												REV. NO.	02



02

13 48

AS MANUFACTURED

02113

48 25

AS MANUFACTURED

00

13 04

FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

CONTRACT NO.

11131113/00

JOB ORDER NO.

S-13656

DRAWN BY

RIZ

CHECKED BY

KVR

DATE STARTED

24.01.2013

DATE COMPLETED

OPRG. DEPT.

CTPD

ENG. DEPT.

AUT-PSAC

VT CONNECTION- UNDER VOLTAGE RELAY

13.8kv UV LOAD SHEEDING PANEL +UVLS

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH - SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

National Grid sa

INDEX

PLANT NO.

DRAWING NUMBER

SHEET NO.

SHT

CONT.

REV. NO.

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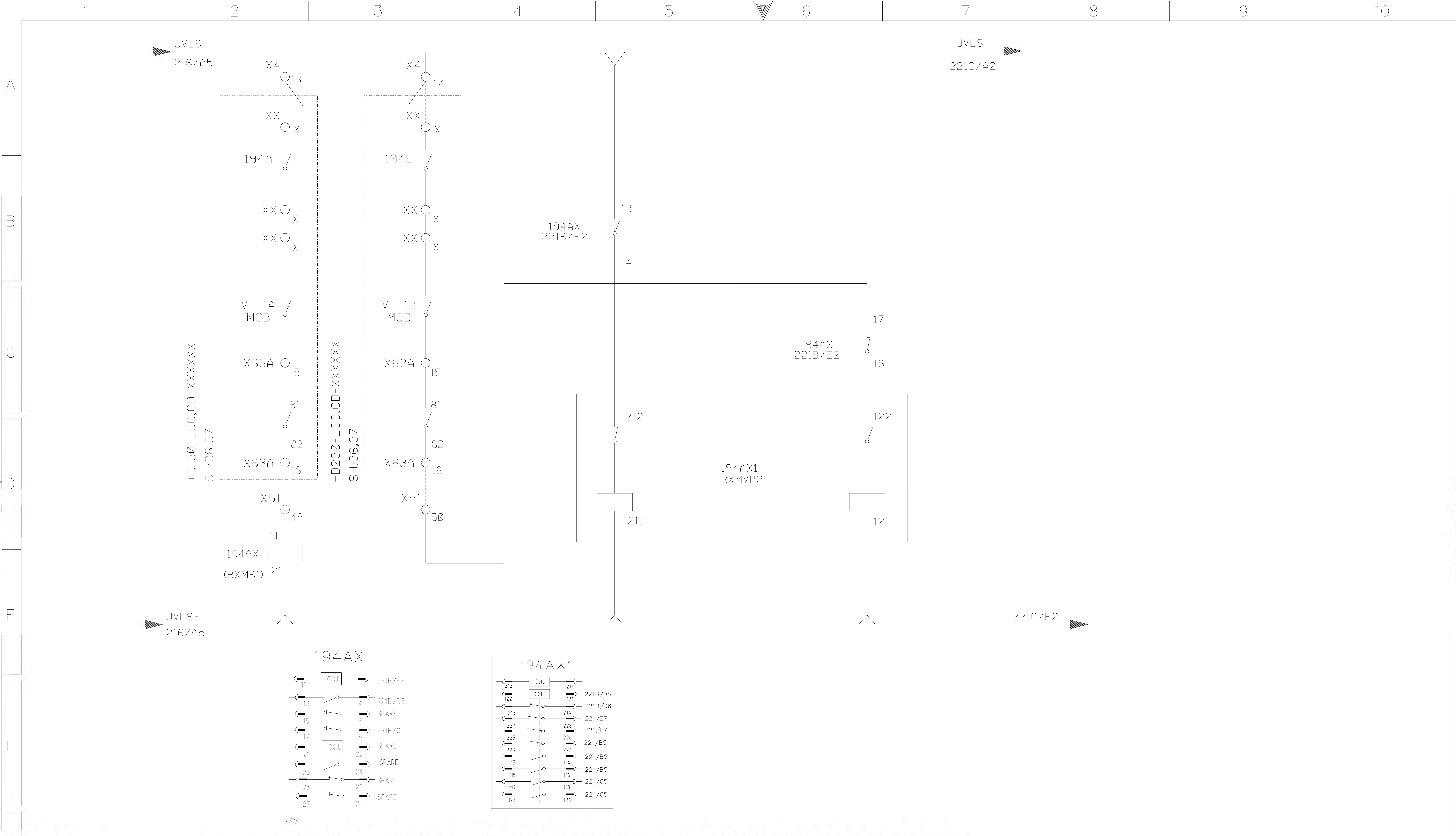
C421


CD-322968

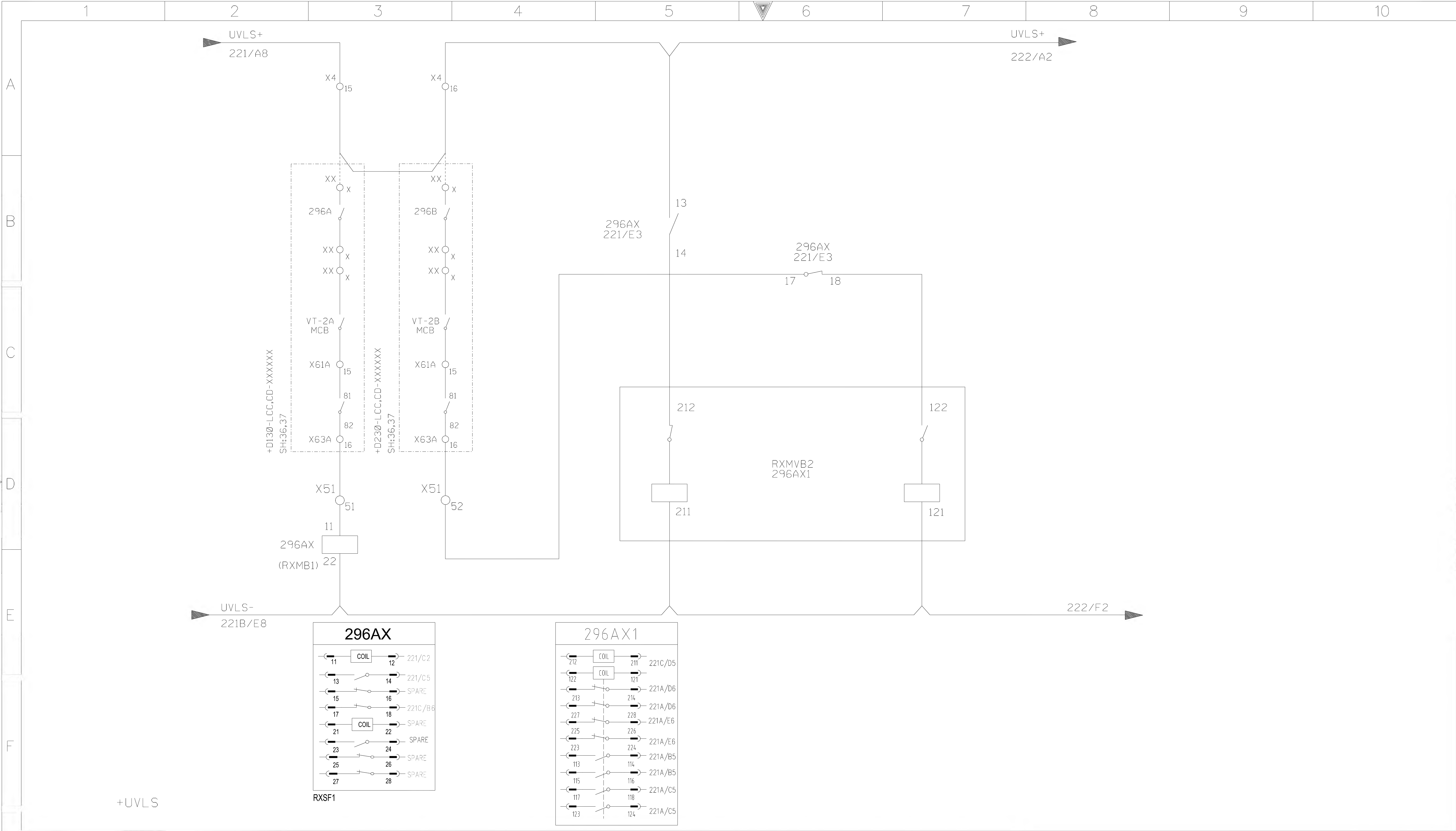
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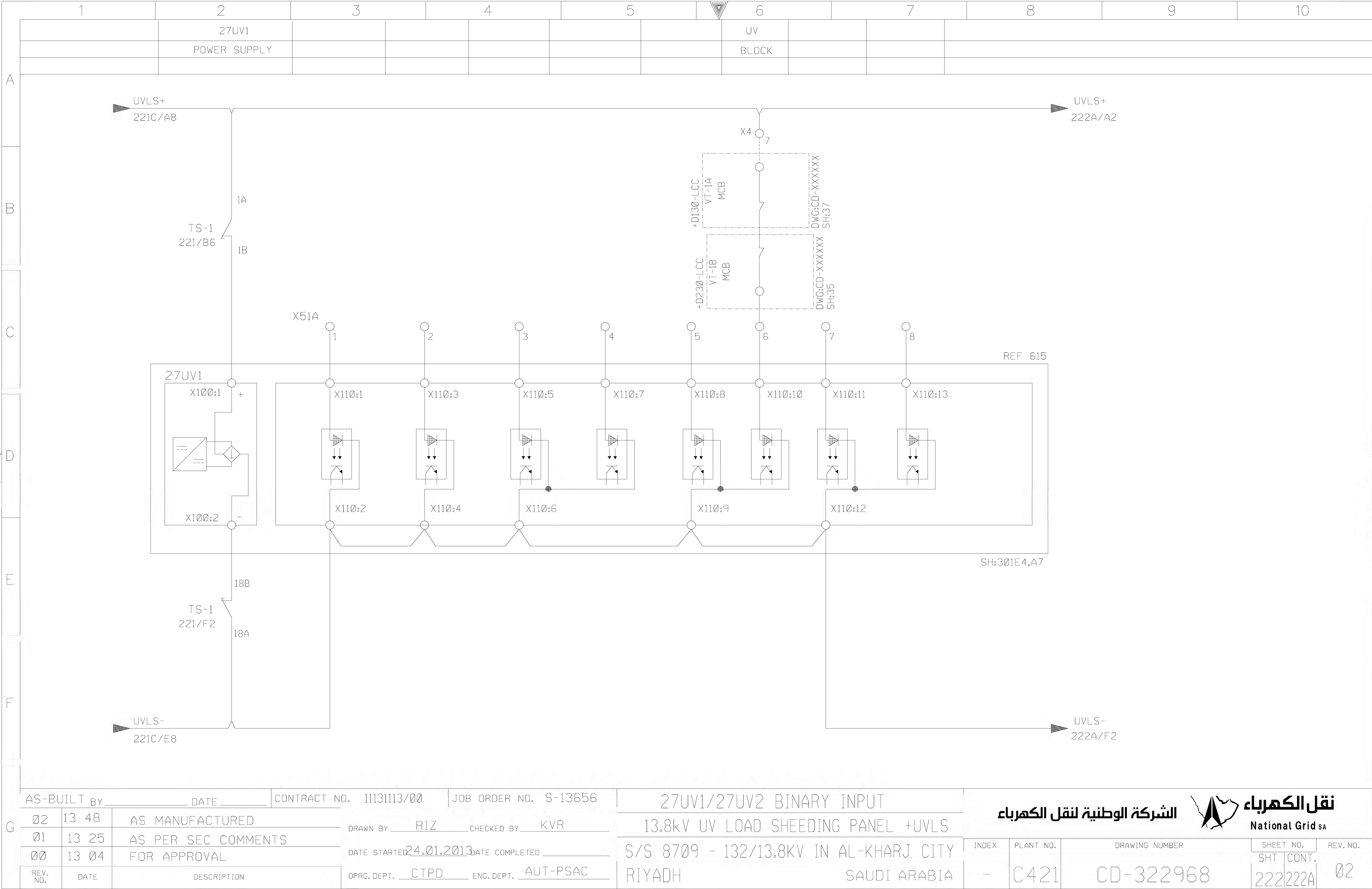
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G	AS-BUILT BY _____		DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		VT CHANGE OVER SCHEME 1A/1B		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>					
	02	13 48	AS MANUFACTURED			DRAWN BY RIZ		CHECKED BY KVR		13.8kv UV LOAD SHEEDING PANEL +UVLS						
	02113	48 25	AS PER SEC COMMENTS			DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
	00	13 04	FOR APPROVAL			OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322968	SHT 221B221D	CONT. 02
	REV. NO.	DATE	DESCRIPTION													



G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		VT CHANGE OVER SCHEME 2A/2B		<div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>			
	02	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kV UV LOAD SHEEDING PANEL +UVLS					
	01	13 25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY					
	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA					
	REV. NO.	DATE	DESCRIPTION				INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
						-	C421	CD-322968		SHT 221C	CONT. 222	02



02

13 48

AS MANUFACTURED

01

13 25

AS PER SEC COMMENTS

00

13 04

FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY

RIZ

CHECKED BY

KVR

DATE STARTED

24.01.2013

DATE COMPLETED

OPRG. DEPT.

CTPD

ENG. DEPT.

AUT-PSAC

CONTRACT NO.

11131113/00

JOB ORDER NO.

S-13656

27UV1/27UV2 BINARY INPUT

13.8kv UV LOAD SHEEDING PANEL +UVLS

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

National Grid sa

INDEX

PLANT NO.

DRAWING NUMBER

SHEET NO.

REV. NO.

-

C421

CD-322968

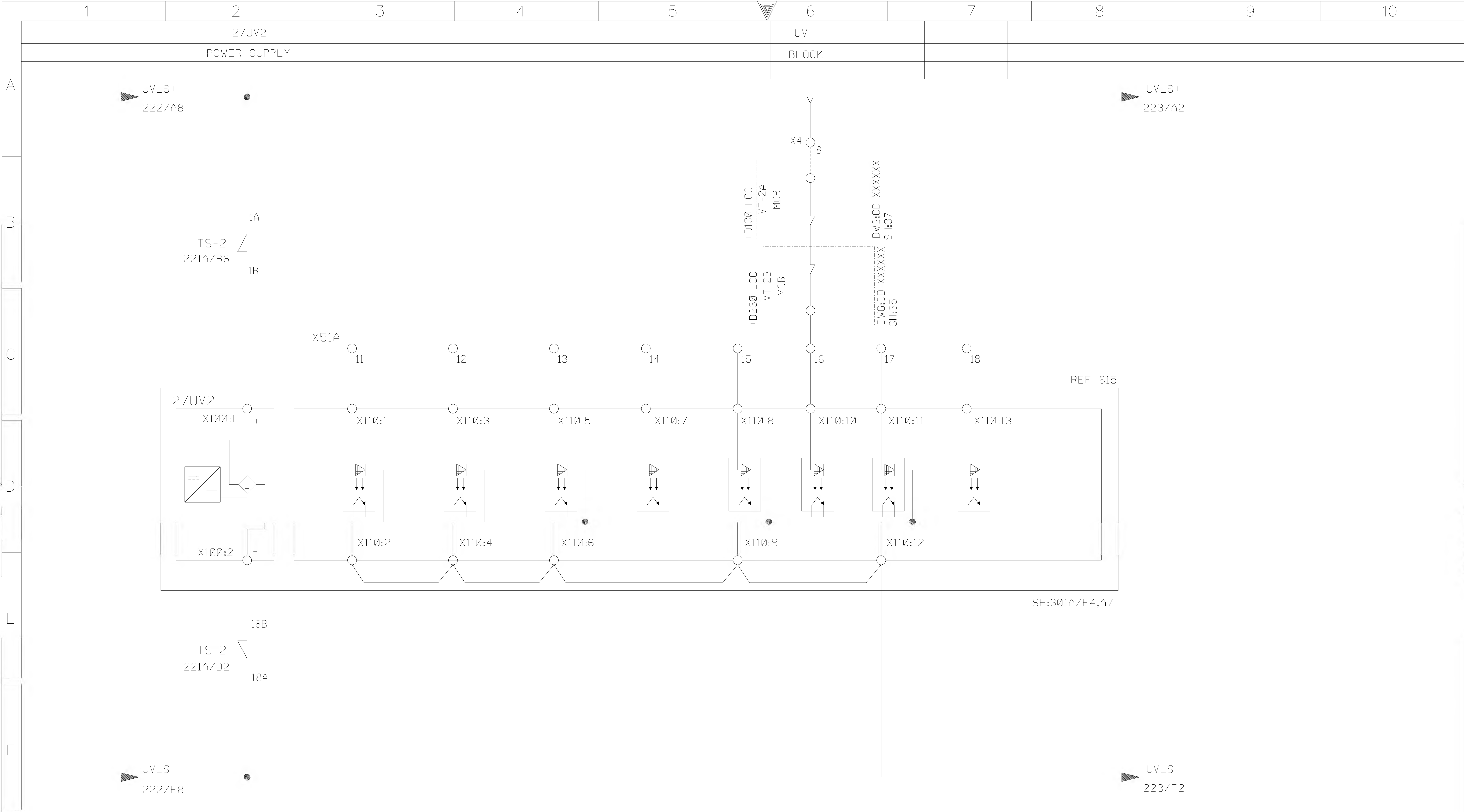
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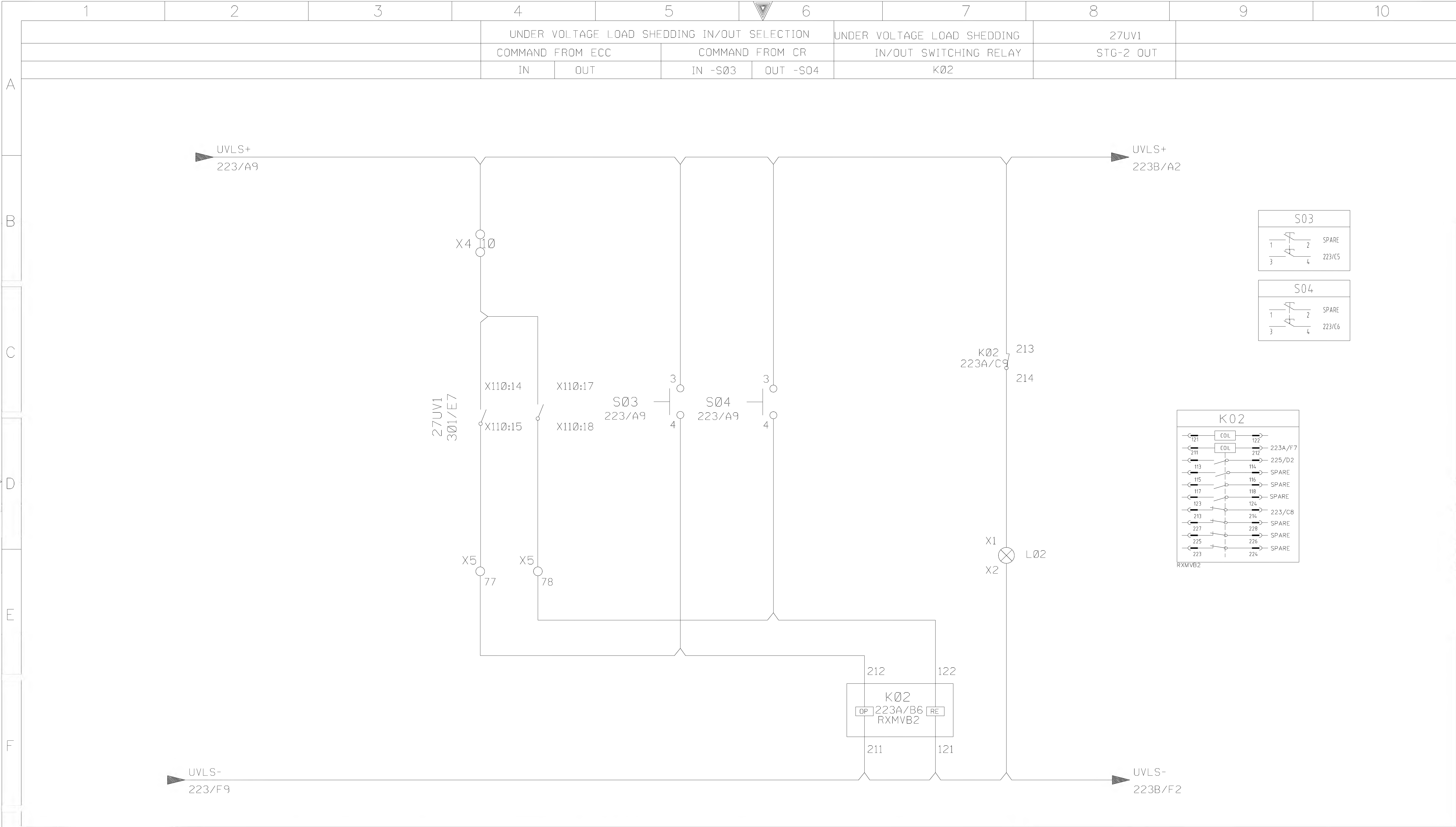
222

222A

02

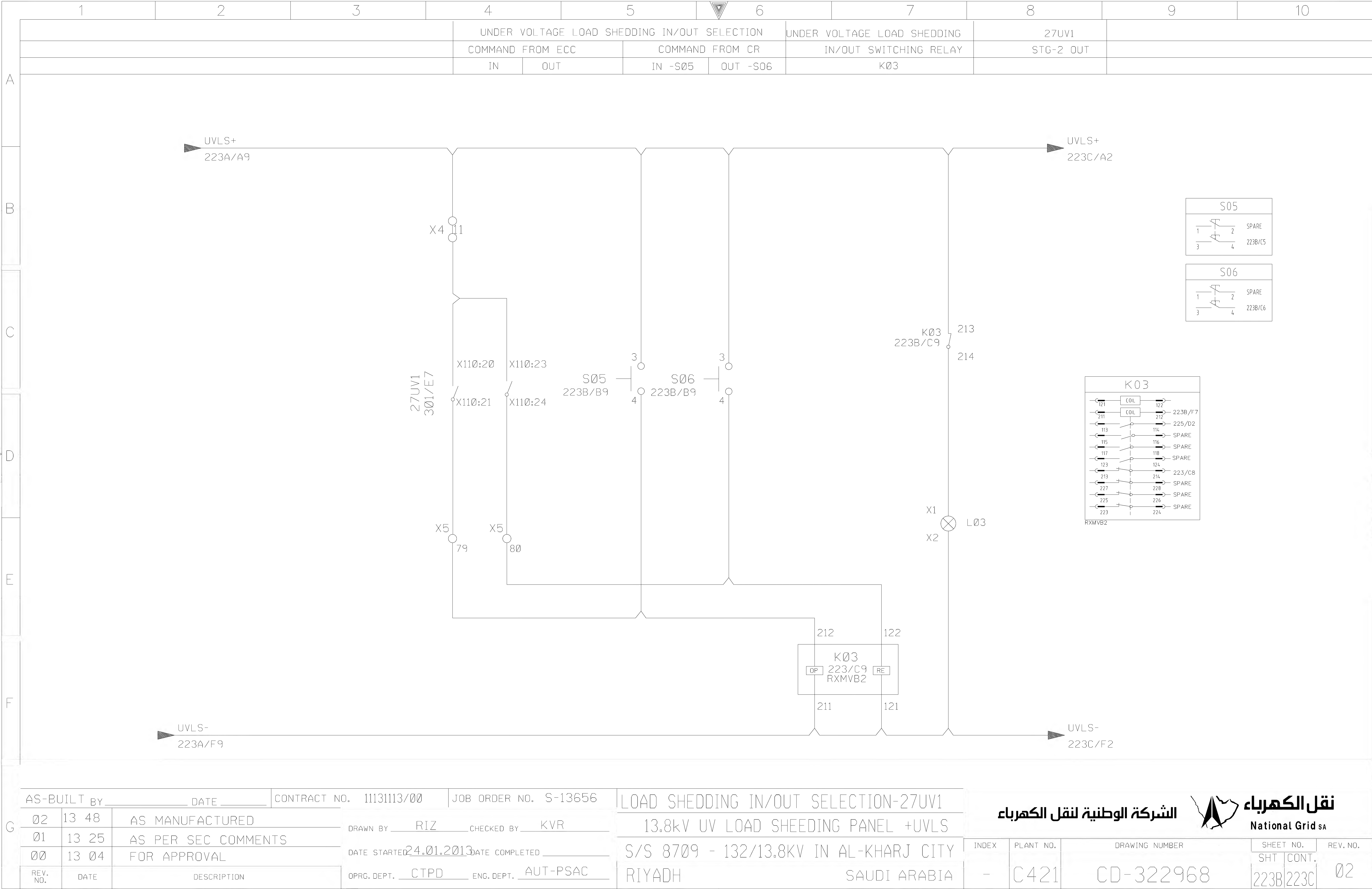


G	AS-BUILT BY _____		DATE _____	CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		27UV1/27UV2 BINARY INPUT		<div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>							
	02	13 48	AS MANUFACTURED		DRAWN BY RIZ		CHECKED BY KVR		13.8kv UV LOAD SHEEDING PANEL +UVLS								
	01	13 25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY								
	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	REV. NO.	DATE	DESCRIPTION								-	C421	CD-322968		SHT CONT.		02

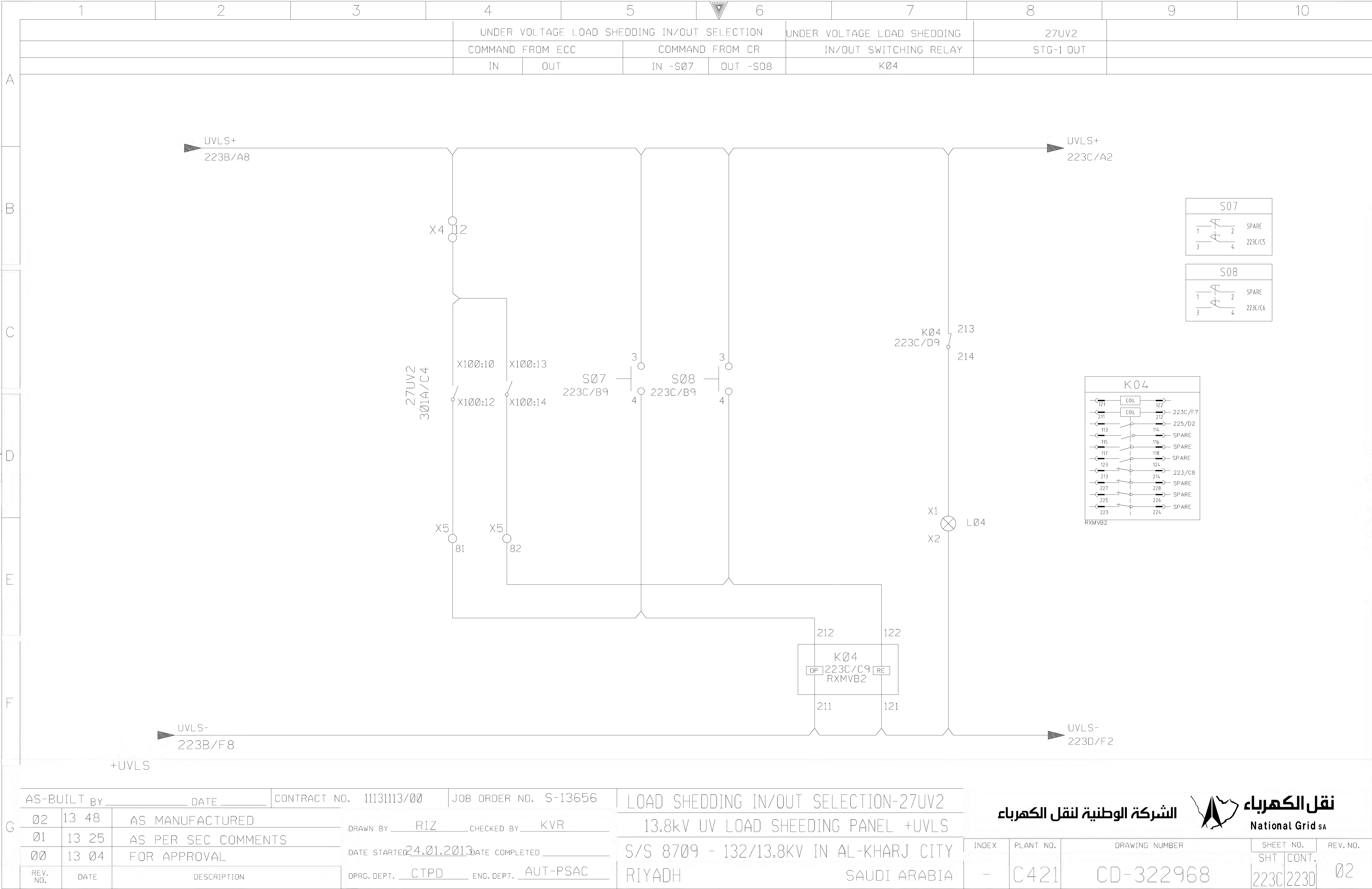


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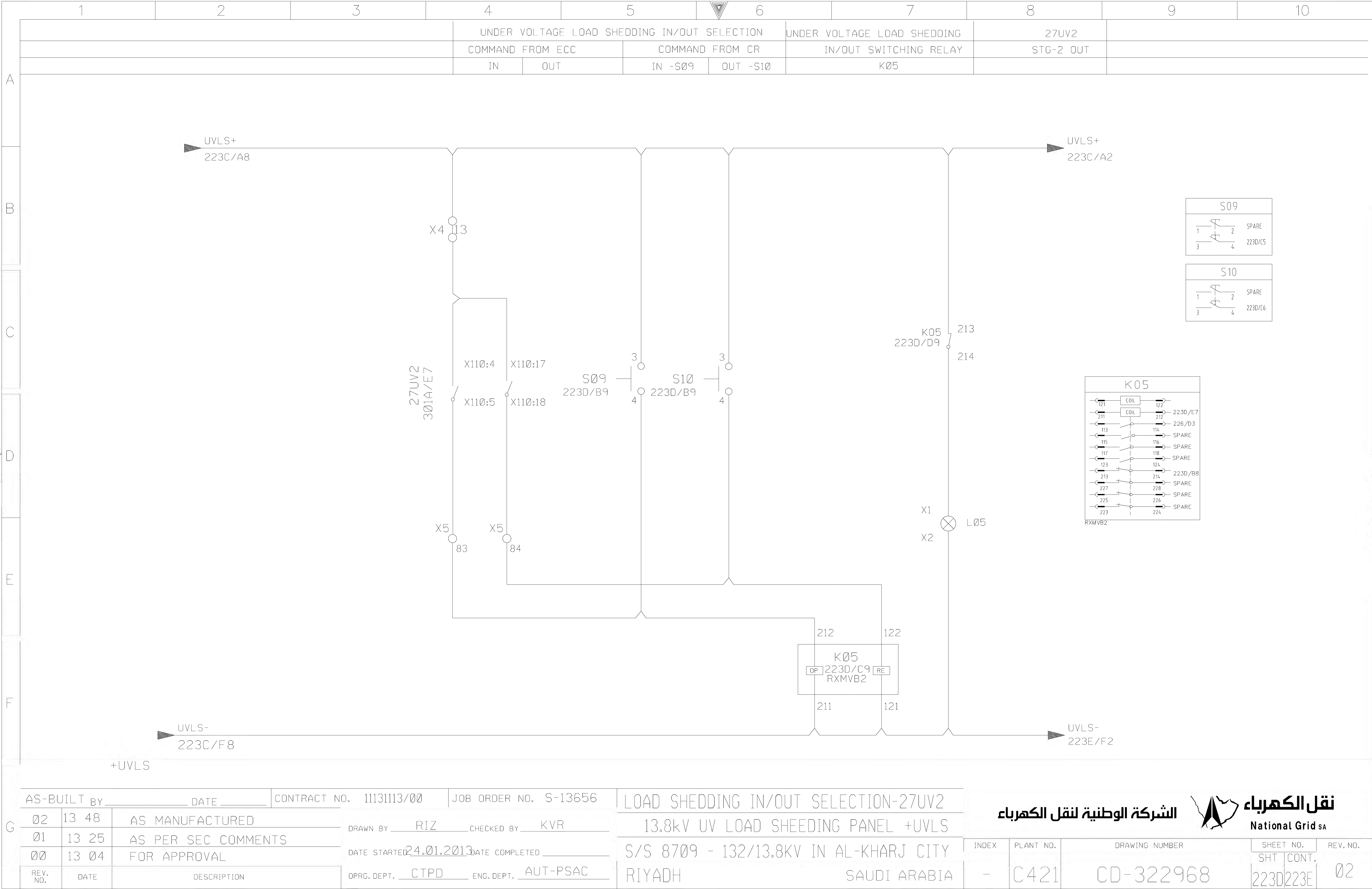
AS-BUILT BY _____			DATE _____	CONTRACT NO. 11131113/00	JOB ORDER NO. S-13656	LOAD SHEDDING IN/OUT SELECTION-27UV1		<div><div>الشركة الوطنية لنقل الكهرباء</div><div><div><div><div></div></div></div><div>نقل الكهرباء</div><div>National Grid sa</div></div></div>						
02	13	48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kv UV LOAD SHEEDING PANEL +UVLS							
01	13	25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY							
00	13	04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA							
REV. NO.	DATE		DESCRIPTION				INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.	
							-	C421	CD-322968		SHT CONT.		02	
											223A 223B			



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AS-BUILT BY _____ DATE _____

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

02 13 48 AS MANUFACTURED

01 13 25 AS PER SEC COMMENTS

00 13 04 FOR APPROVAL

REV. NO. DATE DESCRIPTION

OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

DRAWN BY RIZ CHECKED BY KVR

DATE STARTED 24.01.2013 DATE COMPLETED _____

LOAD SHEDDING IN/OUT SELECTION-27UV2

13.8kV UV LOAD SHEEDING PANEL +UVLS

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

نقل الكهرباء

National Grid sa

INDEX -

PLANT NO. C421

DRAWING NUMBER CD-322968

SHEET NO. 223D 223E

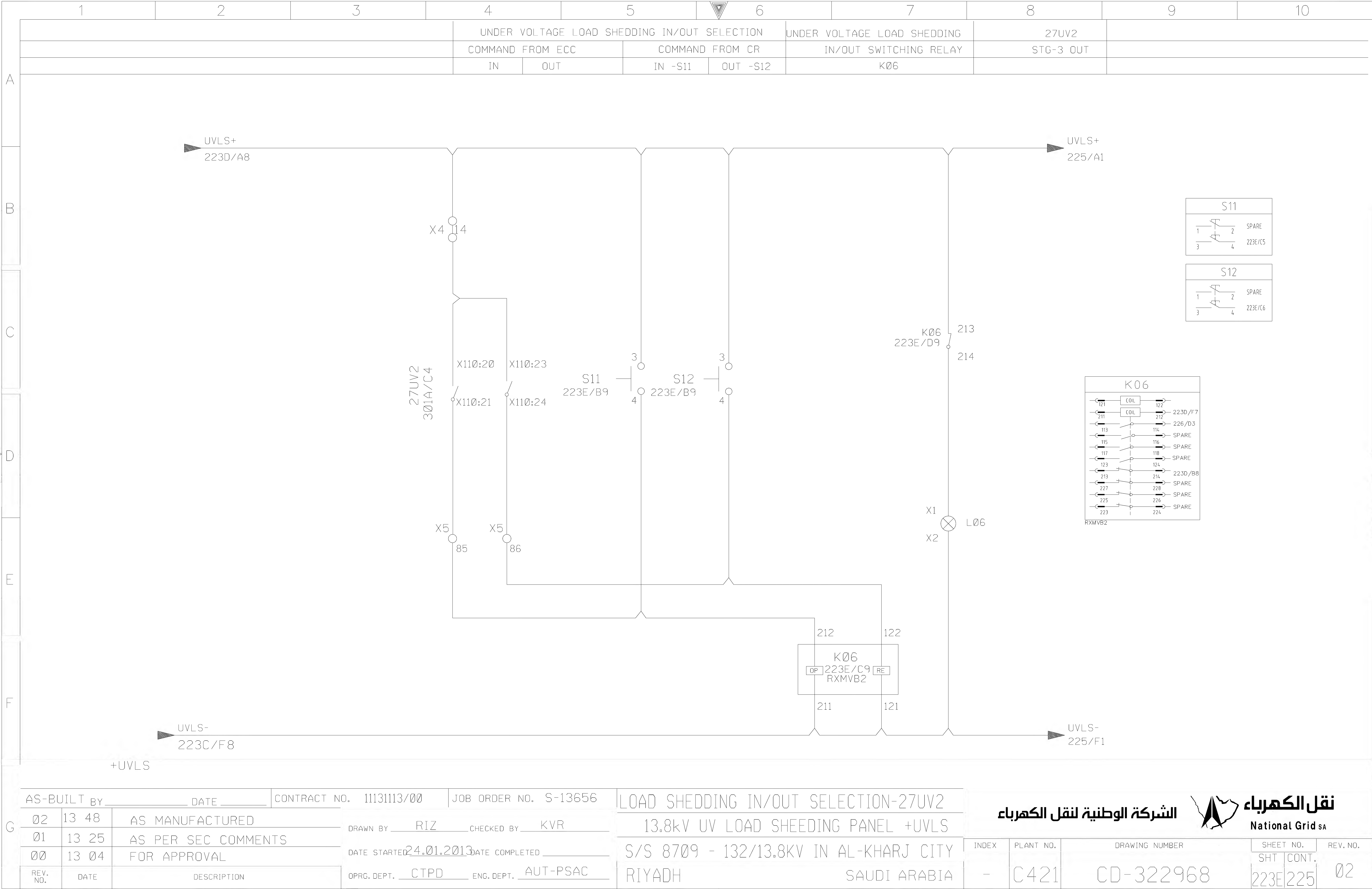
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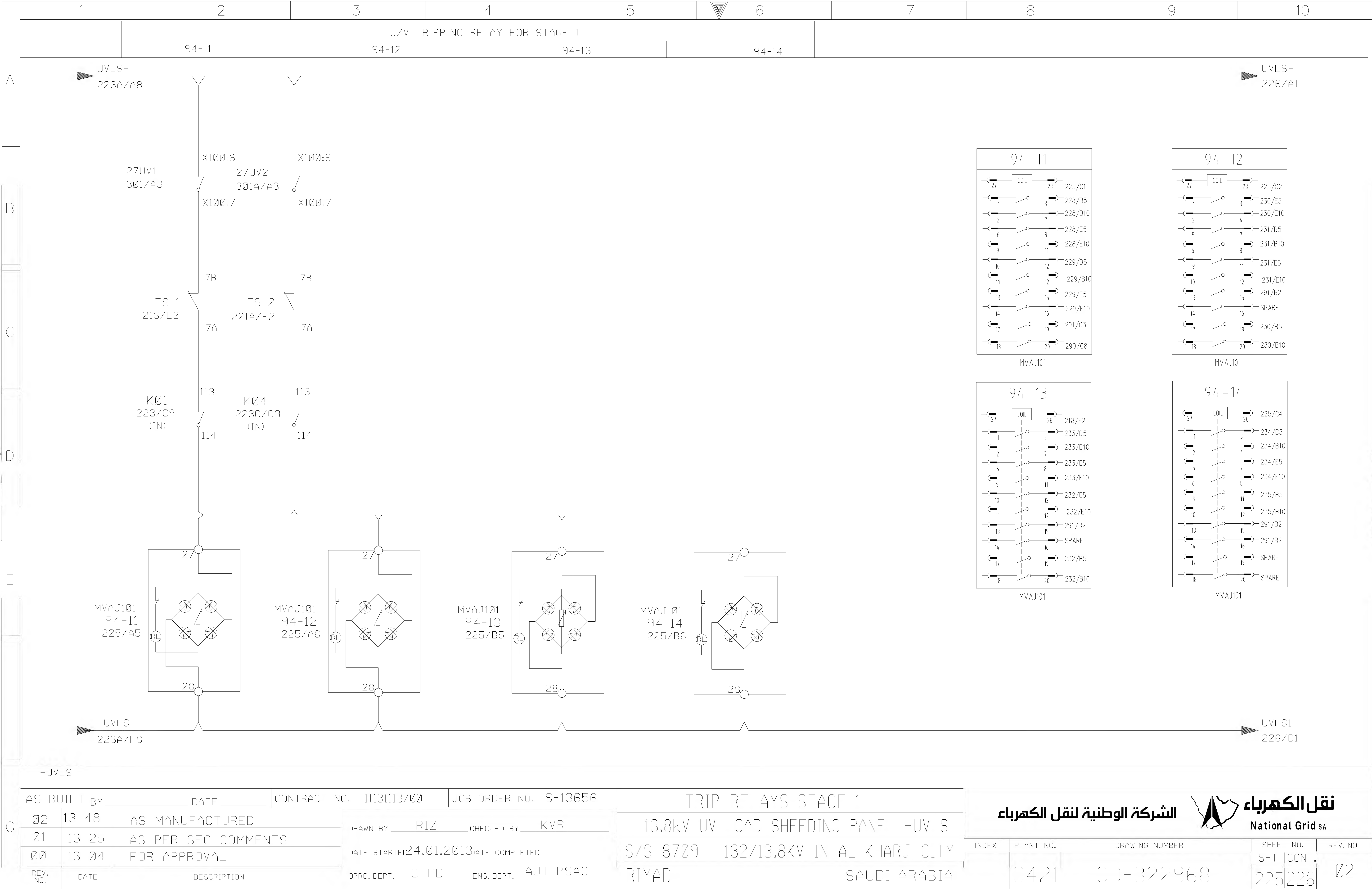
DMS VECTOR

NGD200

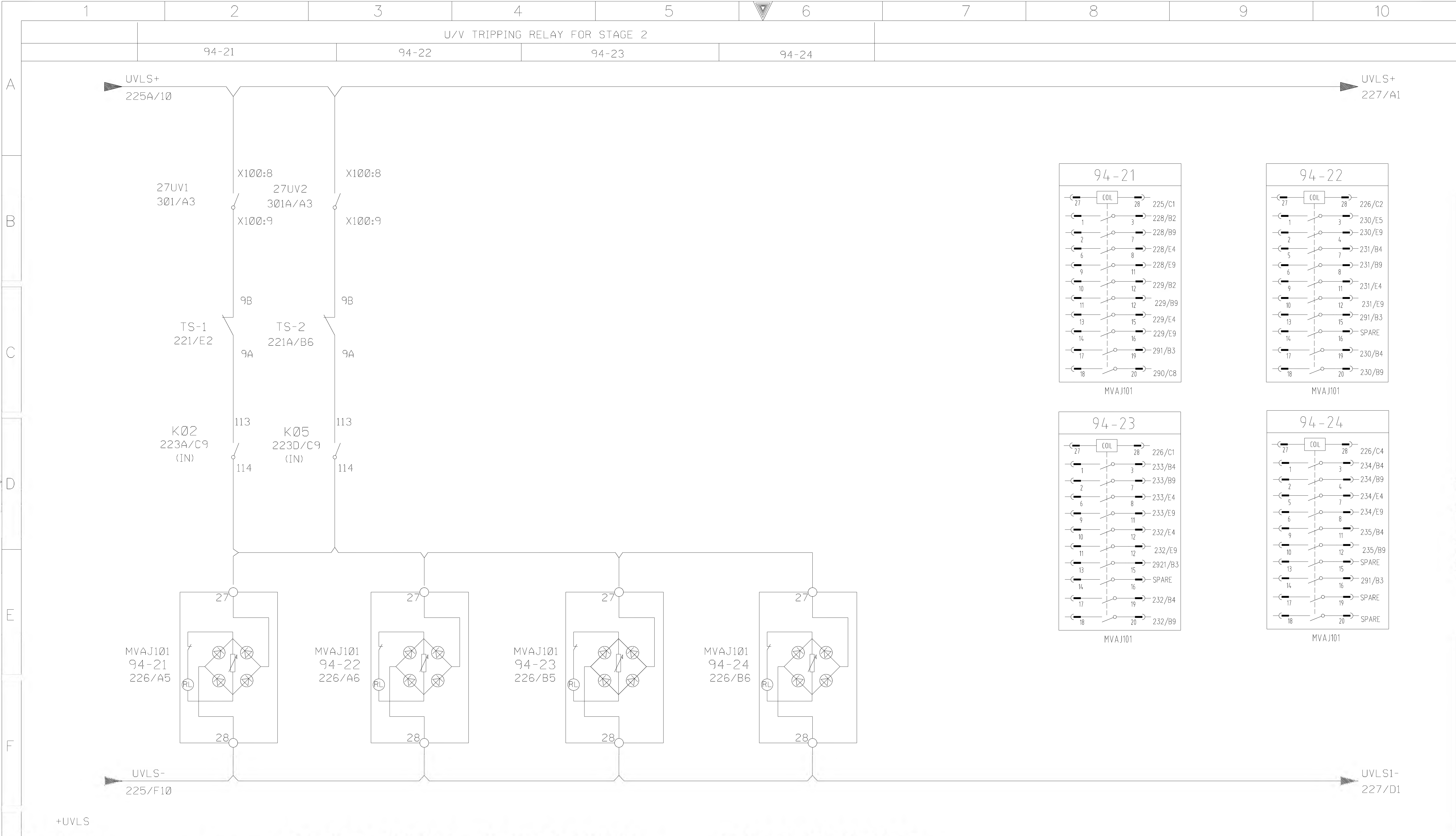
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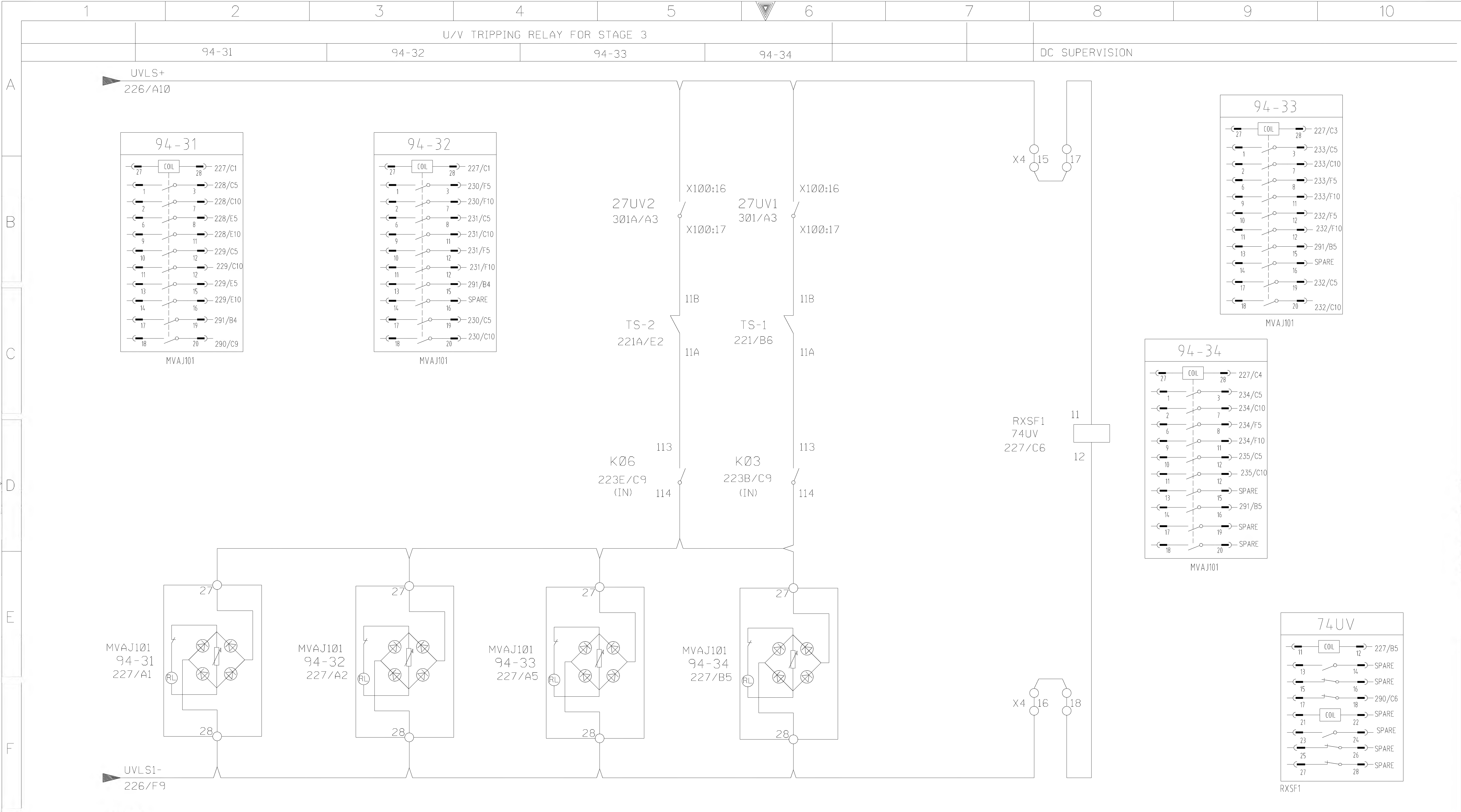
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	02	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kv UV LOAD SHEEDING PANEL +UVLS								
	01	13 25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322968		SHT	CONT.	02
	REV. NO.	DATE	DESCRIPTION										223E	225	



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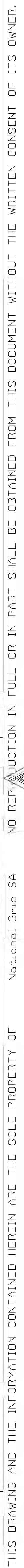
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G	02	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kV UV LOAD SHEEDING PANEL +UVLS							
	01	13 25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY							
	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA							
	REV. NO.	DATE	DESCRIPTION											
								INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
								-	C421	CD-322968		SHT	CONT.	02
												226	227	



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		TRIP RELAYS-STAGE-3			الشركة الوطنية لنقل الكهرباء National Grid sa						
02	13	48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kv UV LOAD SHEEDING PANEL +UVLS									
01	13	25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY			INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
00	13	04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA			-	C421	CD-322968		SHT 227	CONT. 228	02
REV. NO.		DATE		DESCRIPTION												

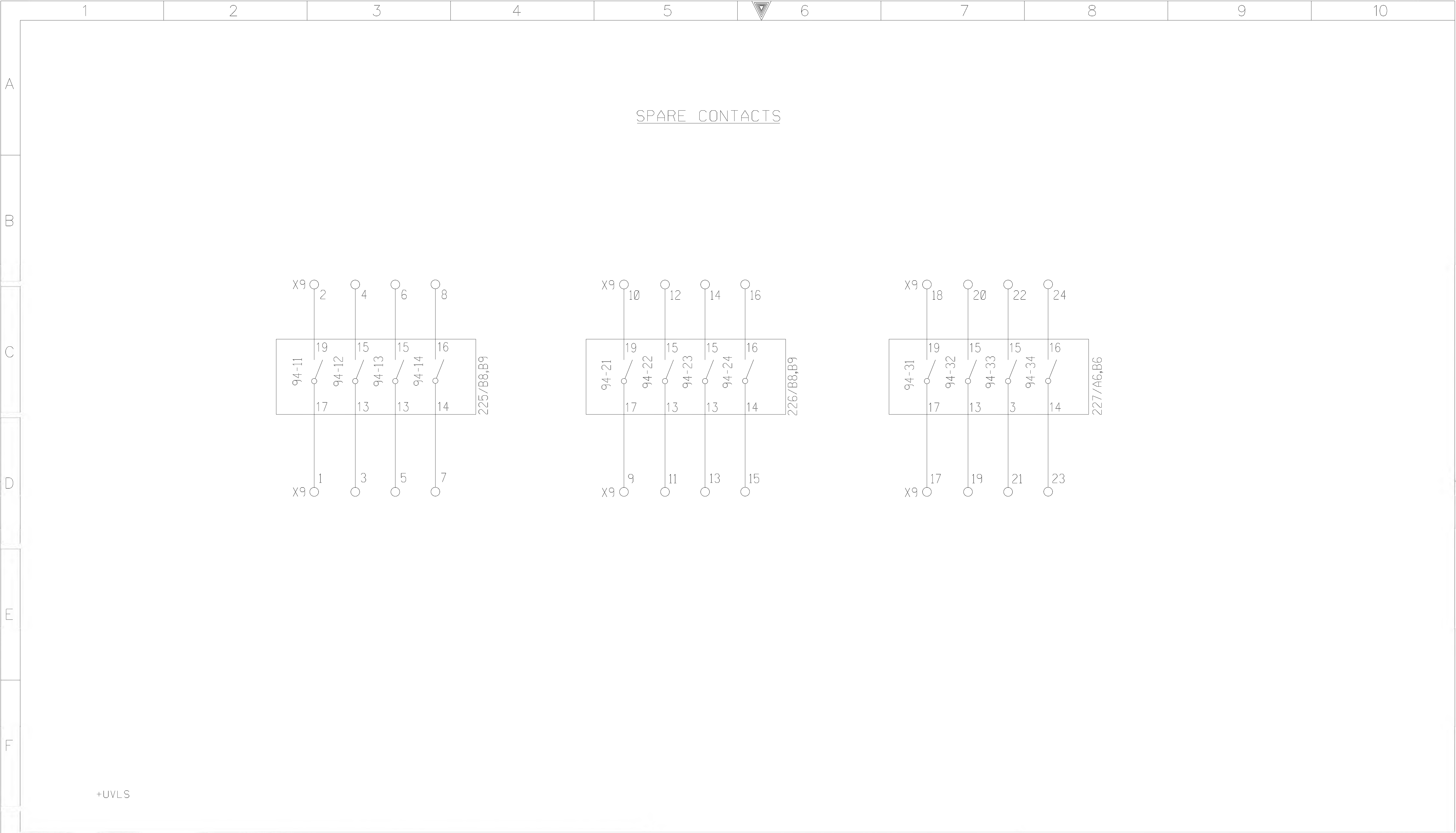












AS-BUILT BY

DATE

CONTRACT NO.

11131113/00

JOB ORDER NO.

S-13656

02

13 48

AS MANUFACTURED

01

13 25

AS PER SEC COMMENTS

00

13 04

FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY

RIZ

CHECKED BY

KVR

DATE STARTED

24.01.2013

DATE COMPLETED

OPRG. DEPT.

CTPD

ENG. DEPT.

AUT-PSAC

SPARE CONTACTS

13.8kV UV LOAD SHEEDING PANEL +UVLS

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

National Grid SA

INDEX

PLANT NO.

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SHT

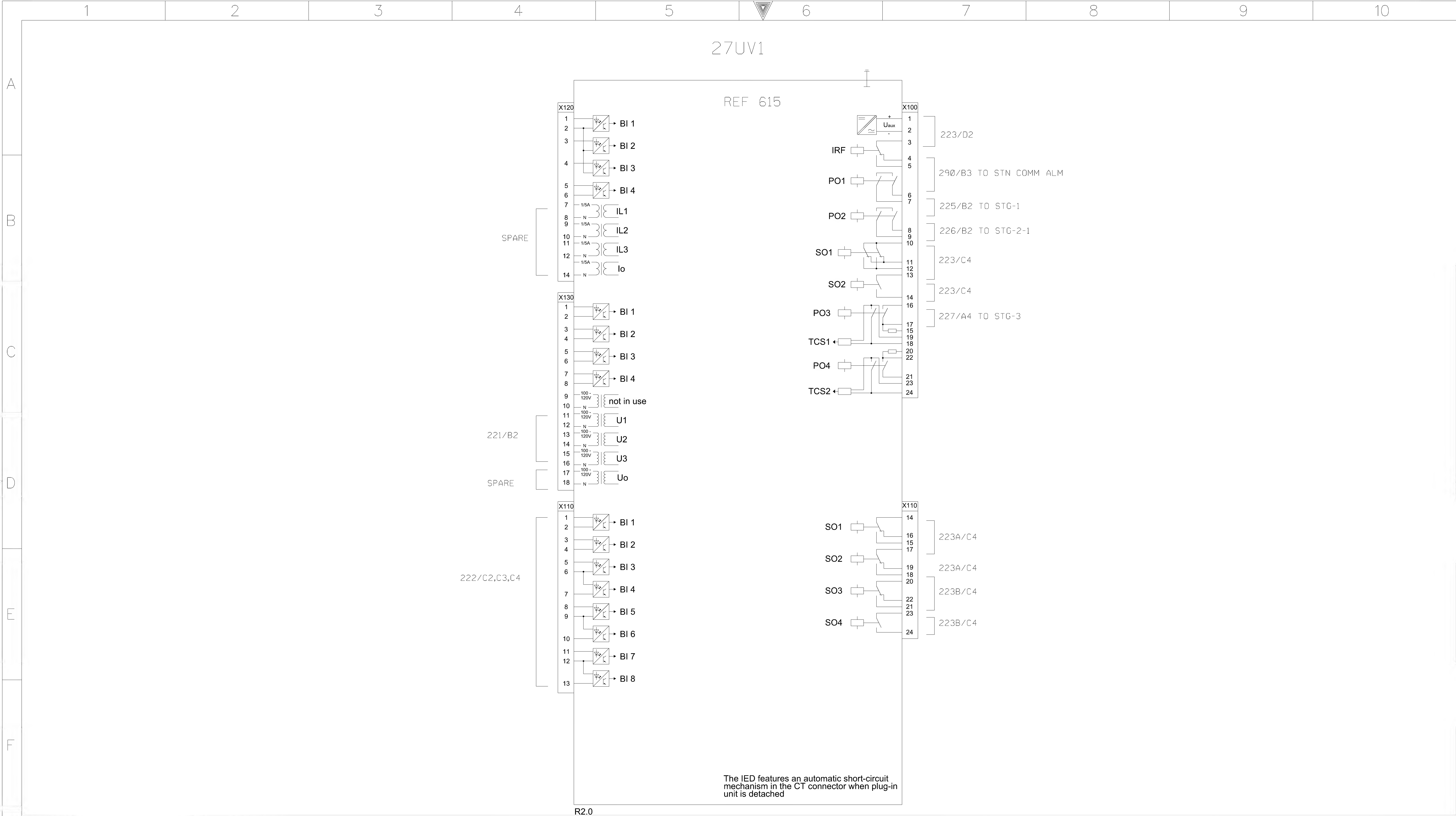
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Uaux

IRF

PO1

PO2

SO1

SO2

PO3

TCS1

PO4

TCS2

223/D2

290/B3 TO STN COMM ALM

225/B2 TO STG-1

226/B2 TO STG-2-1

223/C4

223/C4

227/A4 TO STG-3

223A/C4

223A/C4

223B/C4

223B/C4

SPARE

221/B2

SPARE

222/C2,C3,C4

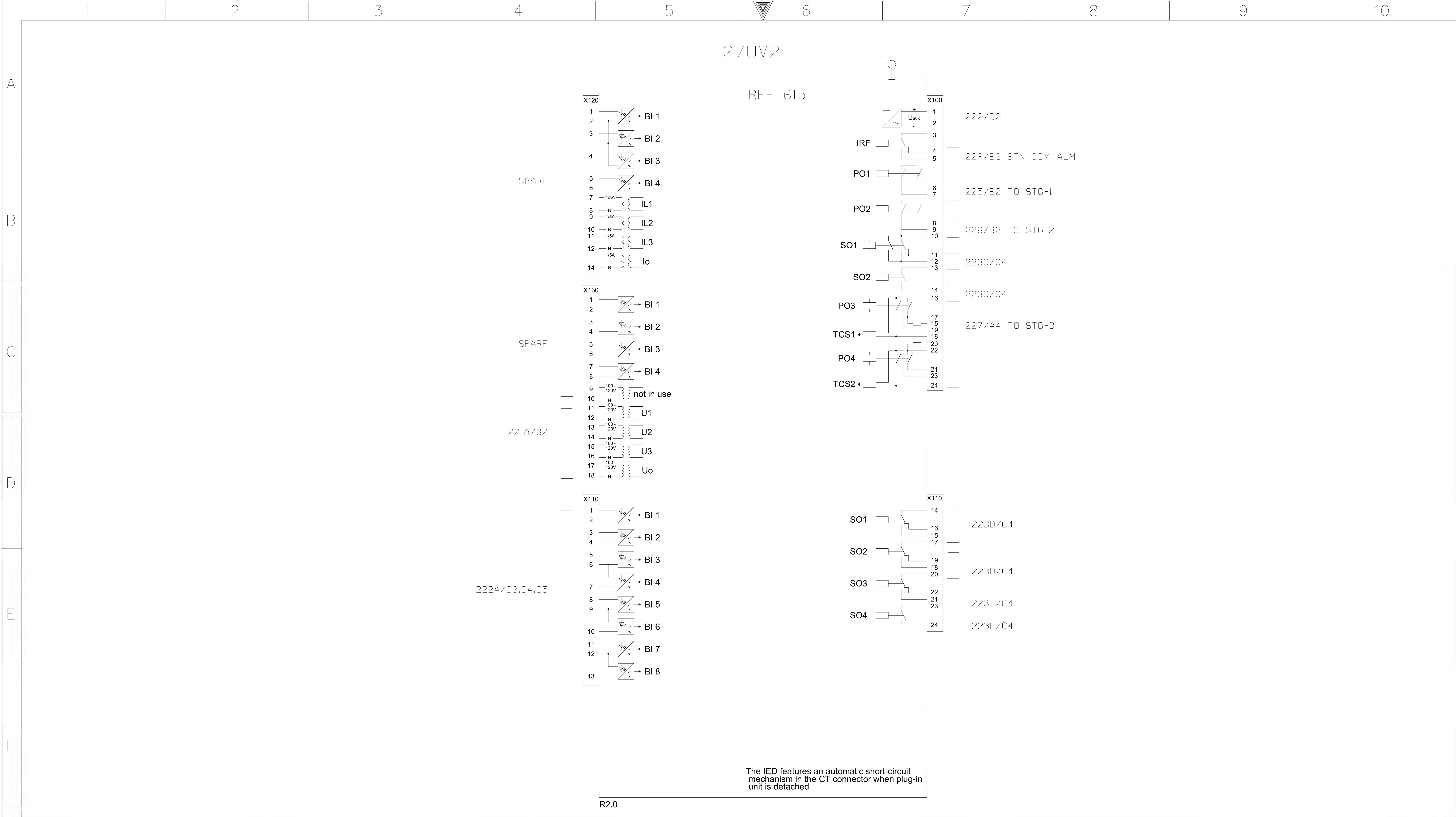
The IED features an automatic short-circuit mechanism in the CT connector when plug-in unit is detached


R2.0

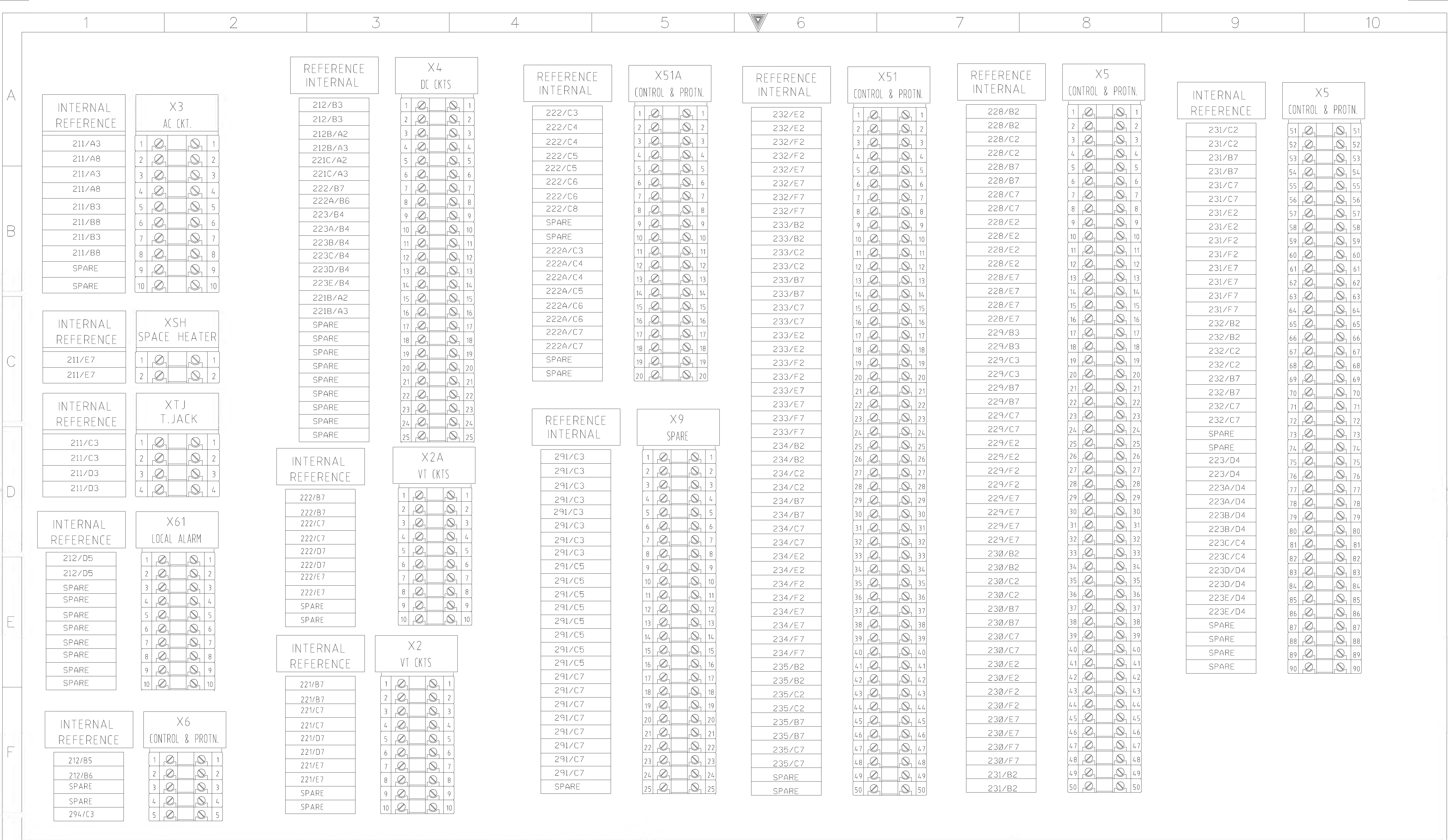
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656	
02	13 48	AS MANUFACTURED		DRAWN BY _____ RIZ _____ CHECKED BY _____ KVR		
01	13 25	AS PER SEC COMMENTS		DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____		
00	13 04	FOR APPROVAL		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		
REV. NO.	DATE	DESCRIPTION				

BLOCK REFERENCE	
13.8kV UV LOAD SHEEDING PANEL +UVLS	
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY	
RIYADH SAUDI ARABIA	

الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		National Grid sa	
INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	REV. NO.
-	C421	CD-322968		SHT CONT.	02
				301301A	



G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		BLOCK REFERENCE		الشركة الوطنية لنقل الكهرباء				نقل الكهرباء	
	02	13 48	AS MANUFACTURED		DRAWN BY _____ RIZ _____ CHECKED BY _____ KVR		13.8kV UV LOAD SHEEDING PANEL +UVLS		National Grid sa					
	01	13 25	AS PER SEC COMMENTS		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
	00	13 04	FOR APPROVAL				RIYADH SAUDI ARABIA		-	C421	CD-322968		SHT	CONT.
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC								301A	302
														02



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		TERMINAL BLOCK ALLOCATION			الشركة الوطنية لنقل الكهرباء			نقل الكهرباء		National Grid sa	
02	13 48	AS MANUFACTURED	DRAWN BY RIZ		CHECKED BY KVR		13.8kV UV LOAD SHEEDING PANEL +UVLS			INDEX			PLANT NO.		DRAWING NUMBER	
01	13 25	AS PER SEC COMMENTS	DATE STARTED 24.01.2013		DATE COMPLETED		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY			-			C421		CD-322968	
00	13 04	FOR APPROVAL	PRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH			SAUDI ARABIA			302		NIL	
REV. NO.	DATE	DESCRIPTION	SHT		CONT.		02			REV. NO.			02		02	

